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THE MAGAZINE OF APPLE
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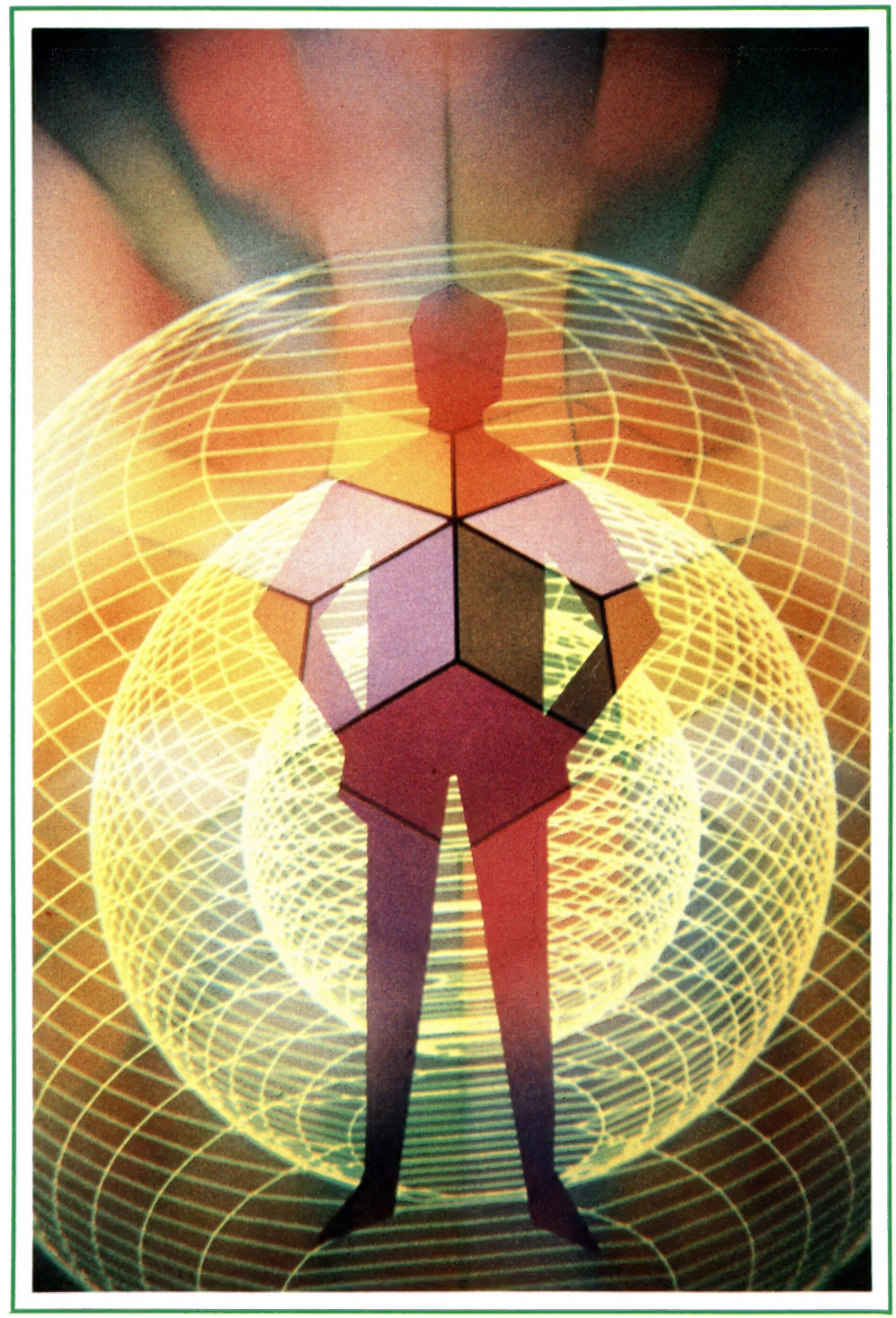

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Chapter Ten:
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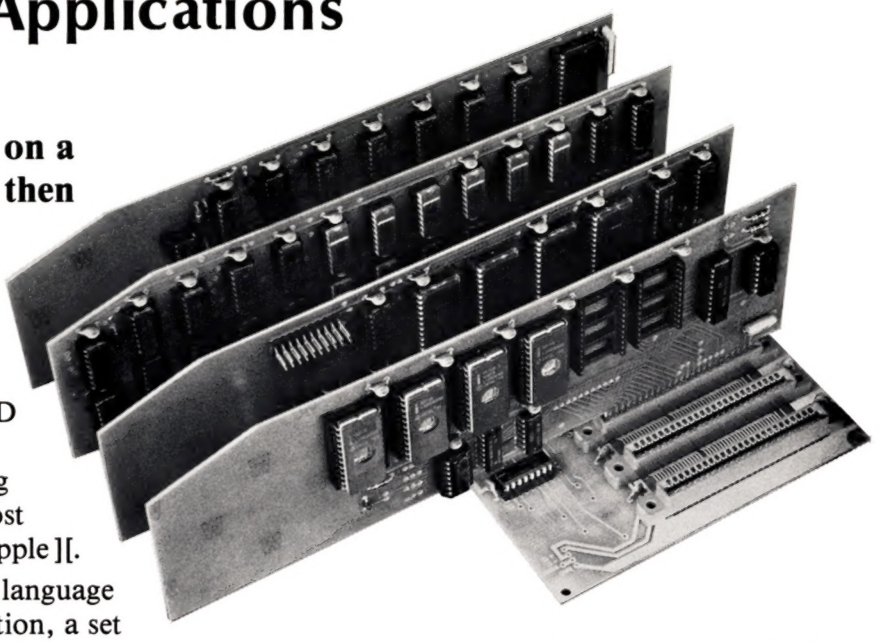

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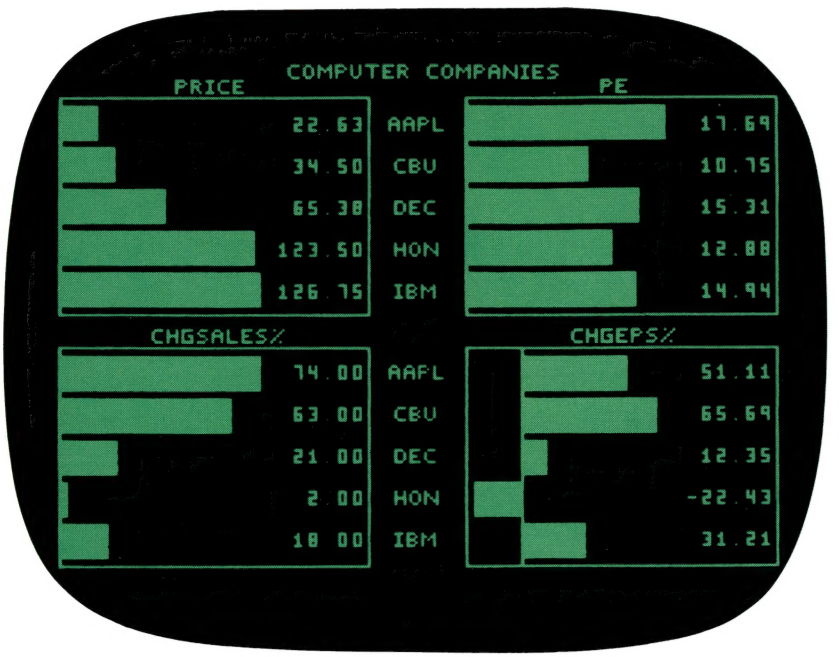

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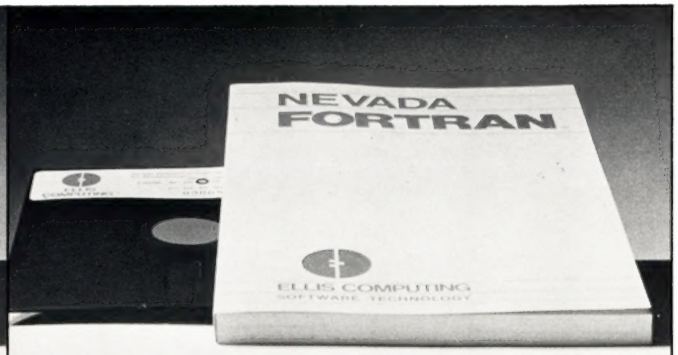

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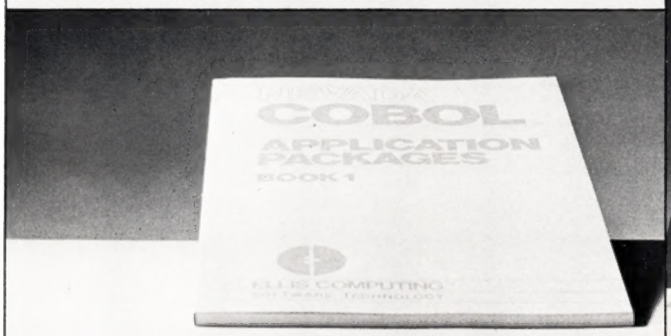

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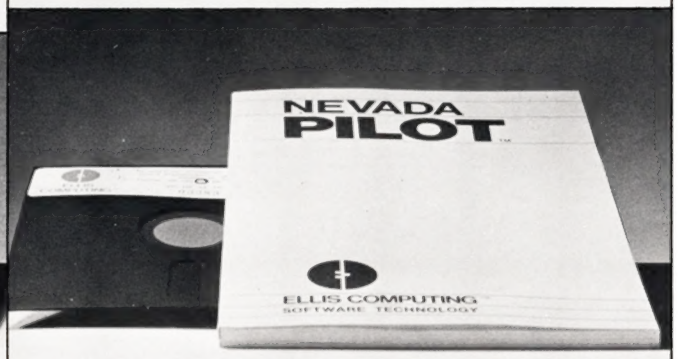

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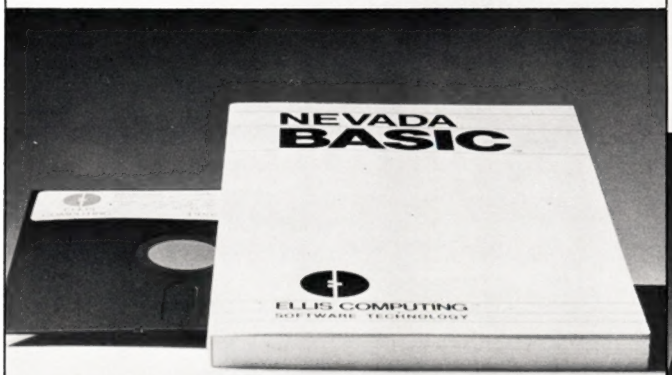

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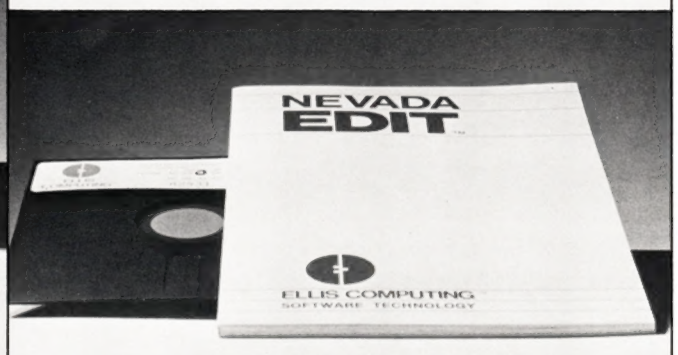

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The Authors

Sandy Abernathy, who taught elementary school for thirteen years, now teaches courses in microcomputer applications and management technology at New Mexico State University. In addition, she presents workshops on educational applications of microcomputers for teachers and administrators and uses her Apple for word processing and consulting projects. She holds a B.S. in Biology, an M.A.T. in Elementary Education, and a Ph.D. in Educational Management and Development. Her hobbies include fishing, camping, swimming, reading, and using her Apple.

David Birnbaum is a student enrolled in the advanced education program at Las Cruces High School. He belongs to the German and Computer Clubs and plays for the school orchestra. He has been active in Scouting for the past five years. He enjoys writing programs in BASIC and spends his spare time playing Dungeons & Dragons.

Montgomery Lee is a U.S. Air Force Captain currently assigned to the DoD Shuttle Program Office in Los Angeles as a Manager for Shuttle Payload Flight Readiness. He is also an F-4 pilot. He has a B.S. in mathematics and astronautical engineering and an M.B.A. His hobbies are science fiction and photography.

Tom Little has a B.S. in Physics and Computer Science. He is currently pursuing his studies in physics at Oxford University. Tom's hobbies are writing computer languages and writing science fiction.

John Martellaro is an operations research analyst for TRASANA, White Sands Missle Range working in computer graphics and combat simulation models. He has a B.S. in astrophysics and a M.S. in physics. John enjoys computer chess, science fiction, astronomy, and soaring.

J. Kent Miller has recently become a fulltime investor in Denver, Colorado. He was previously an Attorney. In addition, to legal writing, he has had reviews of Apple products published in other Apple publications.

John Mitchener is a Personnel Management Specialist at White Sands Missle Range. He is a former Electronics Warfare Analyst for the U.S. Army and has a B.S. in psychology. John's hobbies are ballooning, cooking, and ham radio.

F. M. Remley is the Director of the Media Resources Center at the University of Michigan at Ann Arbor. He actively participates on national and international committees on the standardization of video recording. He is also a member of several engineering committees of the Society of Motion Picture and Television Engineers (SMPTE) and the Public Broadcasting Service (PBS).

Alan Shalette is president of Shalette & Company, Inc., a Chicago-based management consulting firm. The firms provides market, product, business and operational systems planning assistance for clients mainly in the finance industry. He holds a B.S. (ChE) and an M.B.A. Alan's outside interests include astronomy, photography, camping, and reading.

Michael Weasner is a former U.S. Air Force fighter pilot/instructor with multiple FAA ratings. His most recent assignment was as Manager of the Computer Resources Division at the Air Force's Space Division in Los Angeles, where he worked with the Space Shuttle and other space related Program Offices. Upon leaving the Air Force, Mike joined Supersonic Express Corporation as their Information Systems Director, Pacific Region. He recently joined TRW and is again working with the Space Shuttle Program. He holds a B.S. in Astrophysics and his interests include space exploration, flying, computers, and science fiction. Mike can be contacted through The Source at CL1312.

Tod Wicks worked for Pacific Telephone for 19 years and saw the writing on the wall (regarding the AT&T breakup) two years ago, and retired to work for ROLM Corporation as a Product Support Engineer in charge of hardware and software compatibility for new products. ROLM manufactures computerized telephone switching systems for businesses. His hobbies include helping people overcome technophobia (particularly computerphobia), collecting software, back-packing, managing a literary magazine for the San Francisco chapter of Mensa, and occasionally conducting classical music.

Karl S. Wittman, Ph.D. is a teacher and educational administrator with 20 years of experience in the medical, allied health and nursing fields, and in vocational education at the high school, college, and state government levels. He has authored two textbooks for McGraw-Hill: *Basic Sciences for Health Careers* and *Medical Laboratory Skills.*

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C Average. Software of a mediocre nature. There may be a lack of good programming concepts or poor error trapping. It may be a repeat of other work, or have a low performance/price ratio.

D Below average. Software with a blatant disregard for the user in terms of programming design, unacceptable documentation, or performance/price ratio.

F Unacceptable. Software of such poor quality or usability that it should not be marketed.

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Editorial

Honk If You Hate The IBM-PC

By John Mitchener

Big Blue sells a lot of computers. Not just big computers to big companies, but also small computers to big companies. I've been asking myself recently why so many people are willing to put up with the obscurities of PC-DOS operating system and the mediocre speed offered by the PC. The answer lies not in the innovativeness or the quality of their machines, but rather in the exceptional marketing and service organization that *is* IBM. Data Processing Managers, while feeling uncomfortable with microcomputers in general, are familiar with IBM products in the mainframe area, know that service is good, and that the company will be around next year. The attitude is: If there are to be micros in the organization, they should be from a company that is a known entity.

Apple has established itself as a technologically innovative company that builds solid products. Unlike IBM, Apple does not have a history of dealing with large companies. As we have said in these pages before, Apple must shed its hobbiest image and project strength and professionalism along with the advancements in hardware and software if it is going to play in the arena with IBM.

Another factor that affects sales of computers is the availability of software and hardware to perform different tasks. In the past the majority of the better software has come from third party vendors. Rumors are circulating that IBM intends to depart from this approach and take more software and hardware production in-house. Apple has developed some excellent software for the Lisa and Macintosh to demonstrate the capabilities of the machines. Additionally, they have chosen to provide extensive support to third party developers to insure that there is a wide variety of software and peripherals for their machines.

Is a conclusion suggested by the preceding information? Both IBM and Apple will still be in the computer business next year as will a few other companies, although not as many as this year. It will not be a good year for IBM compatible machines as a result of the introduction of the PC portable, nor will it be good for companies that rely on a standard operating system from IBM if IBM departs from the PC-DOS environment. Apple can make inroads into the business market by convincing Data Processing Managers that Apple computers can be used to communicate with the large mainframes with flexibility and ease in addition to providing significant local processing power.

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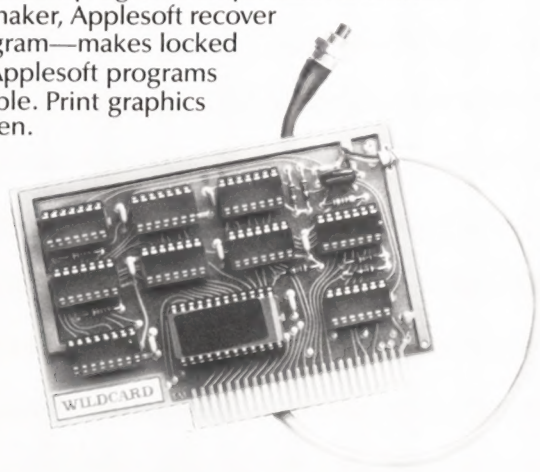

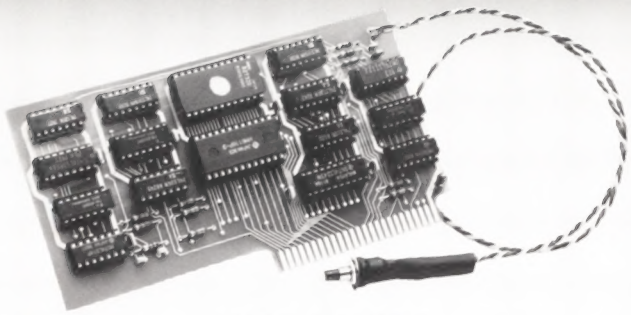

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LETTERS

Dear Peelings:

I am compelled to write you a note to congratulate you on your splendid new format and layout of the January issue of Peelings II. It was full of important information and critiques, presented in an easily readable and exceedingly helfpul style. As a reader of many publications, I can say that this represents one of the most cogent attempts to communicate important information to the prospective consumer and active end-user that I have yet encountered. Thank you for an exciting and innovative effort.

Richard Cohen, M.D.
San Francisco, California

Dear Peelings:

I received V5N1 today. I can't help wondering about the looseness with which top ratings were awarded to several of the programs reviewed. Perhaps I am being overly critical, but some of the ratings awarded seemed high in spite of the fact that the reviewers found so many faults with the programs. I was particularly concerned with the reviews for Money Street and Dollars and $ense. Both reviewers panned the fact that they were copy protected and the buyer is required to send in bucks to get a backup copy, yet they gave an A and an AA+ respectively. Surprisingly, the review which pointed out a higher number of problems go the higher rating! My personal feelings tend to a rating no higher than a B+ to any program that is locked up.

I feel that any program that rates higher than an A should be head and shoulders above the competition. It should also have dynamite documentation with *no* negative remarks (such as ". . .the only drawback to the manual is that not all the options are fully explained, nor are there enough screen displays.") That observation alone should preclude awarding higher than an A. In the Dollars and $ense review, the author mentions such other goodies as the fact that the program almost forces the user to have an 80 column card. This is a limiting factor within the program which makes the program unwieldy for those without. The fact that a one-drive user must do ". . .a fair amount of disk switching." is also pointed out and should lower the score. In the summary, the reviewer mentions that there are problems when writing a report to the screen. In that section, he also indicates that he got a disk error with no explanation! My God, how many problems must a program have had for that reviewer to lower its rating an A?! He concludes that he would have awarded it an AAA if it weren't for the minor errors. *Nuts!* Any program with as many problems as he encountered should be rated no better than a B! Ratings of A or higher should be reserved for bug-free, unlocked, and well-documented software.

Both reviews mentioned that the datafiles were inaccessible by other programs. What nonsense! If these programs deserved such high ratings, why can't they even interact with other programs? Come on Remly and Lee, force software developers to produce interactive datafiles by lowering your ratings if the files can't be accessed by standard operating systems. Why heap praise on promoters of non-standard, locked-up datafiles? I thought the ability to access and modify, by *whatever means,* rather than obfuscation and individuality, is the name of the game today. In fact, the reviewer for Money $treet should have included the $25.00 price for the utilities disk in the price of the program.

With reviews such as the ones for Money Street and Dollars and $ense, I believe that *Peelings* loses some of its credibility as a magazine of critical reviews. (Critical doesn't always have to have a negative connotation either!) For comparison, look at Alan Shalette's review of VisiFile. No problems were encountered, although there were drawbacks. His main complaint was the attitude of VisiCorp toward supporting the user. Hurray for Alan. He gave it a B+.

I also question the rating given the PFS programs. Here are two programs that together cost $250.00 and do pretty much the same as QuickFile (I've used both extensively). Yet the PFS programs cost 2 1/2 times as much, need two separate programs, are slow and hard to learn in comparison, and use strange conventions like CTRL-C to continue rather than a standard RETURN! Yet these together were given an A+.

I realize that all us micro users have our pet programs, but when called upon to judge the relative merits of software, the results of which may mislead some of the 30,000 readers of this magazine, the reviewer must be completely objective and not pass out honors on programs with known deficiencies.

Tod Wicks
Palo Alto, California

Dear Peelings:

I'm a software publisher who sent a program to the Book of Apple Software for review and listing. The Book is now out, and I feel like I've been had.

Naturally I thought The Book would give an unbiased review, but now I discover the Book Company and Continental Software share the same address (11223 S. Hindry, Los Angeles) and that the so-called reviews are anything but unbiased.

Continental publishes the Home Accountant which was "reviewed" along with other checkbook programs (ours included). A glowing account of Home Account was printed followed by a recommendation for purchase.

If the Book of Apple Software would clearly state they have a financial interest in Home Accountant, who could complain? But this isn't the case. Nowhere on the page are we told that this is "in house" software. A mention is made in an obscure section of the Book that some programs are "discussed, but not rated" because they may have arrived late, be too specialized, or have a "conflict of interest" with Arrays Incorporated, but we are not told which programs. It almost takes the CIA to discover the incest involved.

Never are we told in plain language that the Book publisher and the software publisher are the same outfit.

It gets worse. Our software (and other software sent in good faith) gets shot down. For example, about our software the Book says: "There are other copyable programs with more features that cost less." They don't say which features or which programs. We believe the statement is just not true.

In addition to checkbook programs, the Book also lists real estate, tax, and other "in-house" programs not fully identified as such. When the reviewer and the software publisher are one-in-the-same, it's like giving Satan the keys to the Kingdom of Heaven.

Moral: If you want authentic reviews, buy a subscription to *Infoworld, Peelings,* or *Softalk.*

Bob Payne
Money Street
Box 4845
Incline Village, NV 89450□

Finger in the Socket: MACINTOSH

On paper you will be disappointed. You will look at the specs and say, "Hmmm. Only 128K. Only one 400K disk drive. No color." Believe me, it doesn't matter. I have seen and used the Macintosh, and the only description for it is the *Car & Driver* description of the Porshe 911 Carrera: ". . . the fastest factory-fresh, finger-in-the-socket, load-and-cock-it full-time pocket rocket. Amen."

CONSIDER:

A Lisa of your own. A machine that is so revolutionary and beautiful and affordable that you won't be able to resist it. It is so far ahead of "conventional" computers that you will soon realize that the infancy of personal computers has passed. This is the new religion, and you will start to enjoy using a computer like you never have before.

Even so, the Mac is not for everyone. For those who already have a conventional computer that does the job and is well understood, buying a Mac will not be a vital necessity. But for rest of the people on this planet who suspect they need a first computer, but want friendliness and quality, it is the only choice.

The Macintosh brings to mind other fine instruments and machines that evoke that special enthusiasm, the sparkling in the mind, the quasi-sexual exuberance: The crystal clear and dark beauty of the Questar telescope. The dolphin-nosed, supersonic T-38. The sleek Lotus Esprit Turbo that looks fast standing still. The Hewlett-Packard caiculators with their fine craftsmanship and colorful, detailed keyboards.

The trick is this: Using a Macintosh puts you in another realm; the act of using a Mac creates in the mind of the user such a euphoria of excellence that possessing the machine can become an end in itself. Never mind the fact that it will be running some awfully good software.

SOME PRACTICAL CONSIDERATIONS:

The Mac, as of this writing, is not supplied with a programming language. Moreover, the situation regarding a Mac's BASIC was somewhat unclear for awhile. Microsoft supplied Apple with a BASIC written in a high-level language quite some time ago. It was very slow. For awhile, it was thought that this BASIC would be released with the Mac, but my guess is that the assembly language speed of the Mac contrasted too strongly with this slow BASIC. The Mac team, being assembly language specialists, probably threatened mutiny over the prospect of this slow BASIC being released with their beautiful, speedy machine. So, back to the drawing board: Microsoft is now working on a version of BASIC that does some compilation on entry and is claimed to be very fast. It will be available later in the year we believe. Apple, on the other hand, is working on MacBASIC, which is a nonstandard, structured BASIC, presumably written in assembly language. It will be available this summer for $99. In the meantime, we have Microsoft's MS BASIC written in the C language. It is rather slow, but it is available now.

The only thing that bothers me is the lack of color. I did not complain about a lack of color in the Lisa earlier, but I will object to a personal computer introduced in 1984 without color. One can argue that there are good reasons for not going color right now: There is decreased resolution with a color mask. It's more expensive. The Imagewriter printer cannot exploit color graphics. It requires more memory.

Despite the fact that the designers had to stop somewhere to finish the design, color is just one of those things that is going to be a necessity on a machine like this. Soon, I hope.

It is also puzzling why only one Sony drive was built in. Only time will tell whether this was the right choice. Certainly, portability and a lower base price are reasons for a single drive. But it seems like a mistake perilously similar to the Apple ///. On the other hand, the Mac is supposed to be transportable, and one drive will suffice when on the move.

For reasons unknown at this time, Apple will not be supplying a Profile hard disk; Davong will be supplying one instead. Also, a double-sided upgrade for the Sony 3.5-inch drives is, I have heard, on the way. Look for an expansion chassis and eventual upgrade to 512K (Christmas) using 256K memory chips instead of 64K chips. While the basic Mac has a philosophy that tends to discourage fragmentation and variations, it is clear that there will be good possibilities for expansion and improvements.

The success of the Mac will depend on Apple overcoming the mistakes they made with the Lisa. Lisa, now the Lisa II, is a formidable machine. But Apple made the mistake of introducing the Lisa long before it was readily available. They failed to provide additional conventional software that would make business people happy. And the machine was perceived to be too expensive and too slow in its operation. In fact, no microcomputer with an operating system written in a high-level language has been a commercial success. Mac provides hope. Its operating system was written in painstakingly refined and compact assembly language. It was made available for show on the day of announcement. The Mac is a lot faster than the old Lisa and probably faster than the Lisa II. I don't think many will perceive that $2495 is an outrageous price when compared to the Apricot, Tandy 2000, and IBM PC. (Nevertheless, the $1995 price proposed by Steven Jobs was the correct choice.)

Apple now has some new problems to solve: (1) Apple must provide a fast and friendly BASIC that reveals the true superiority of the 68000. If not, Apple may have killed the 68000 in the mass marketplace. Even though Mac is not intended to be a hacker's machine or a programmer's machine, people will still want to program on it. The speed of the Mac will go a long way toward developing its reputation. And, as we know from the Apple ///, a ruined reputation on a fine machine is a disaster. Very fast 68000-based software is a real threat to IBM's inferior 8088 and is the key to Apple's claim of technological superiority. (2) Apple must do something to change its corporate image so that having a Macintosh is "in" (exciting) and having a PC is "out" (boring). Moreover, the name "Apple" must come to mean something more than a cutesy toy. If Apple can change the perception and perspective of businessmen and dealers towards the Apple name, the holy war against IBM will be a lot easier. To wit: (3) Apple must successfully compete on television with IBM and Commodore for public awareness and acceptance. This will require ads of a character and appeal considerably better than previous ones. If they succeed, then all will be well in Camelot. If not, then darkness and gloom could spread over all the land.

The Empire struck back with the PC in 1981. In 1984, the rebellion has a brand new weapon.

The Anything Machine
Chapter Ten: WHAT NEXT?

By Tom Little

It seems natural to conclude "The Anything Machine" by considering how soon everything that's been printed in this column will be out of date. Some developments have already cast their retroactive shadows across these nine issues of *Peelings II:* There are now minimal, serious systems (64K main memory, disk drive) in the $500 price range, and portable computers are finally emerging in large numbers now that low-power IC's have become more common and liquid crystal displays have been elaborated. The market has reached the point where one cannot even pretend to evaluate different systems by the same set of standards. This is the beginning of The Great Anything Machine Multifurcation.

Software also has been changing in character. Long, long ago (I mean 20 months or so), it was still easy to come across commercial software that had the look of homemade programs: "features" that didn't work, sloppy graphics, gross oversights on the part of the programmer, and such niceties. Although I'm sure these can still be found, the pattern today is one of marvelous sophistication. Slip a disk into your Apple, and it is instantly transformed into a slick arcade machine, a word processor, data base system, or whatever. The days of amateur programmers buying software and "improving" or "customizing" it by twiddling with the program are gone for good.

THE FABLED "FRONT END"

Both in hardware and in software, great strides are being made toward achieving that old advertising claim, "No special knowledge of computers required." The HASCI (Human Applications Standard Computer Interface) keyboard on the Epson computer is one example. Having keys labeled "load," "save," "print," "undo," and the like gives the computer more the flavor of a microwave oven or pocket calculator (I don't mean that pejoratively- -the success of both microwave ovens and pocket calculators speaks for itself). The prototypical examples of what I'm talking about are, of course, Apple's Macintosh and Lisa. The activation of different commands by literally pointing to them (with the use of the mouse) makes operation of these machines effectively self-explanatory: not just for a single program or task, but in general.

I believe this trend will continue, and that much of the potential of inexpensive hardware is still being explored by programmers who are by stages coming to grips with the notion that they have the resources to make anything attractive and simple to the user.

Intrepid prediction number 1: Within 5 years, the computers in the $1000 to $5000 range will all have "Lisa-snazziness" as their main selling feature.

This is one branch of The Great Anything Machine Multifurcation: the integrated hardware/software system that makes the inner workings of the machine invisible.

THE UBIQUITOUS CHIP

Something else is going on in parallel with this development. The microprocessor, now available for the price of a lunch, is finding its way into all sorts of gadgets, from toys to ovens to automobiles to typewriters. I think this application of computer technology to ordinary electronics has been slow to start because there is a certain inertia to the idea that computers are "outrageously expensive" and can't be used with such wild abandon. But that has changed, and there are literally thousands (millions?) of uses for microprocessors and memories which have not even been dreamt of yet. Automated house cleaning (anyone read Ray Bradbury?)? Televisions with a built-in TV guide?

Intrepid prediction number 2: Within 10 years, the average house will have several microprocessors in every room (not including computers and video games).

This is another branch of the multifurcation: a dedicated machine which is pure front end: i. e., not usable as a computer at all but only as a gadget. Of course, dedicated word processors and dedicated data base machines have been around for a long time, but not in the price range of personal appliances.

THE ANYTHING MACHINE?

But what of the general-purpose computer? The two scenarios described above are both movements away from programming and toward button punching. Will the engineers and programmers have thought of everything that a person is likely to want from a computer and provided it in an easy-open package?

To a large extent, yes. Certainly the vast market of people who feel they have no particular use for a computer and aren't interested in programming will finally be reached by these specialized devices. If the Lisas and Macs don't get them, the great gadgets surely will. The computers with the polished software and the self-explanatory keyboards will draw away the larger part of today's computer users: those who have a computer because they need the capabilities it gives in some specialized area (e.g., word processing).

There remains now, as we thin down the ranks of computer owners, just a fraction of the population. First there are the electronic hobbyists, the hackeroids, and the curious. These people started the computer revolution in their garages and are likely to still be there after the dust has cleared. The computer as adult toy will no longer be as expensive, and perhaps some more will be drawn into tinkering from curiosity, when working computer systems can be had for $20 to $100. It may be, though it's hard to say, that the current machines in this price range will be replaced by more do-it-yourself, electronics-oriented systems.

The second group of hard-core computer owners are those who want to have their cake and eat it too. They want to take

advantage of the best that the professional software designers have to offer, and also of the pristine versatility of the computer as an Anything Machine. It is clear that the author's sentiments lie here, and the banner is now unfurled. The price range $100 to $1000 will be occupied by machines which are serious systems in terms of storage and interface capability, but which are designed for flexibility at the expense of "front-end friendliness."

Intrepid prediction number 3: Five years from now, I will still own my Apple II.

This is not meant to imply that 5 years from now, the Apple II series of computers will be the best buy in its price range (if they are still being made!), though it is not altogether inconceivable. Right at the moment (October 23, 1983, 1:26 p.m. Greenwich Mean Time), the flexibility combined with extensive use of professional software makes the Apple II (or more specifically, the Apple //e) arguably the best computer to buy. This is largely because of its head start in the market, which still gives it the widest assortment of independent hardware and software add-ons. In comparable positions are the IBM PC, and to a much lesser degree the Commodore 64 and the motley host of CP/M-based machines.

And what of the portable computers? These, I think, may turn out to be kindred to the user-oriented dedicated systems, though their prices may come down into a lower range than the descendants of Lisa.

FEATURES

So far, this discussion has not followed the usual pattern of gee-whiz prediction for hardware advancements ("Every computer will have a full-color holographic display!," "You can store 30 trillion bytes on a single 5-centimeter gamma-ray cassette!," "A folding photo-typesetter that will fit in your pocket!"). This is because the new features must fit the new machines. Without first making a wild guess as to the look and purpose of tomorrow's computers, it is difficult to make an educated stab in the dark regarding their features.

First the little Lisas, by which I mean the user-oriented, integrated systems. We can hope for the following standard features: Full-color display *and* hardcopy which match exactly. Any piece of work should appear in full color on the screen exactly as it will appear on paper when printed. This feature is more or less with us already, but the prices will hopefully drop a bit. Also, memory will increase dramatically. The megabyte barrier for primary memory has already been broken. Perhaps solid-state, *nonvolatile* memory technology will allow the total abandonment of secondary storage: no more disks. Perhaps not. It is, in any case, certain that new disk technologies will greatly increase the amount of secondary storage available for reasonable prices. These machines will be able to do large data base tasks and provide all the computing power needed to run a medium-sized business. Thus this particular descendant of the personal computer will replace the mini's and mainframes still at large today.

The computerized gadgets will no doubt be various and fascinating, but what form they will all take is anyone's guess.

The general-purpose computers will almost certainly receive many of the same embellishments as the little Lisas, though to a lesser degree. Perhaps the most visible change in this area will be the improvement of graphics capabilities. With inexpensive extra memory, resolution and color variety will continue to increase (compare, for example, the IBM PC and the older Apple II). One may pray that computer languages will become more standardized and sophisticated in their treatment of graphics. This would be a most welcome change.

Also, perhaps operating systems will come into use which encourage more flexibility in programming. It would be nice if operating systems with "preferred programming languages" would become a thing of the past.

The great breakthrough in the portable computers will come when one is made in the dimensions of a notebook, with a flat, page-size display (preferably in color!) and enough memory to store reference materials on-line.

The battle about which operating systems and programming languages will predominate is, I think, largely a moot one. There won't *be* all that many people using programming languages and operating systems in the coming decades. The vast majority of computer owners will not be programmers. Is this good or bad? What will become of the hot issue of "computer literacy?"

PEOPLE AND COMPUTERS

There is already a growing number of people who have caught on to many basic computer notions simply by exposure. The words "program," "software," "CRT," and "disk drive" hardly need explaining anymore. With this osmotic education, apprehension and awe have decreased, and people now are generally more confident and capable in their dealings with computers than a decade ago. I believe this trend will continue up to a certain saturation level. It is analogous to the situation of household electricity. The wall sockets carry very little mystery for most people, and "Watts" and "Volts" have found their way into natural parlance. But how many of us are "electrically literate?" How many people could correctly explain the principle of an electric motor?

The point is that familiarity is not the same thing as comprehension. In the past, computers have been unfamiliar and incomprehensible. In the future they will be familiar and incomprehensible. This is consistent with the remarks above to the effect that computers will become more common, but computer programming less common as the professional designers replace the amateurs.

The age-old query has always been "Do I need to know how to program in order to use a computer?" As time progresses, the answer is increasingly "No."

But really, the use of a computer without programming amounts to short-circuiting the distinguishing feature of the computer: its programmability. A word processor-cum-data base manager-cum-chart preparer is certainly a wonderful device, but it is not everything that is implied in the word "computer."

As the standard software for computers grows in sophistication and usability, so also the untapped potential of the Anything Machine will grow in scope and depth. The two developments take place separately but simultaneously, as the current technology branches into specialized forms.

In the "quit while you're ahead" spirit, "The Anything Machine" closes on this optimistic note. □

Cars and Computer Software

By Sandy Abernathy

We bought a new car this week to replace my dearly beloved Toyota. It had given us 10 years of trouble-free service. We started out armed with a list of Essentials and Very Important Requirements. These were: a reputation for maintenance-free performance; good mileage; dealer support; reasonable cost; comfortable ride; same size and shape as the Toyota; heater; air conditioner; five-speed shift; trip odometer; AM-FM radio; four doors; and light color. We soon found out that most dealers in our town had a car sitting on their lot that met most of these requirements. After eliminating the models that did not have all the features, we found that there were four possible choices. This meant that our selection could be based on convenience factors rather than technical considerations. The car we finally selected was packed with small, user-friendly features. The group that designed the car must have included technical experts as well as a person who sat down in the driver's seat and thought, "Now, what would *I* like to find on *my* car?" Our experience indicates that new-car technology has advanced to the stage where the user can assume that a new car will be relatively maintenance free and that a fairly large number of features will be standard. Because these features are already in place, less important, user-friendly features can become final criteria in the selection process.

Some computer software is beginning to approach this level. Think of the more popular word processing packages. Users no longer have to spend a major amount of time checking programs. They can assume the program will run accurately and be bug-free. General word processing features such as a text editor, search, locate and replace text, copy and move text, and format text for printing are standard on most word processors. So, the user can concentrate on locating software with additional features which will make the program more useful and convenient. These might include an extra-easy manual and program, an automatic index generator, ability to print subscripts and superscripts, or ability to call data from another program. Each package has a unique set of options, many of which would be useful in all word processing software. Cars have been around much longer than computer software, and as the years have gone by, features that began as options have become standard. Computer software has followed the same trend. New and updated packages usually have more features than older ones. Hopefully, in years to come, some of the word processing features which are considered optional today will be standard tomorrow.

Has educational software reached the new-car market level? Not yet, in my opinion. In fact, it has not reached the level of word processing software. A consumer of educational software cannot yet assume that a package will be technically accurate and educationally sound. Educational software is still at the stage where the buyer must check technical accuracy and educational value before considering other factors. But there is hope! I saw more good educational software this past year than I had seen in previous years. I also saw more programs for students that were designed to give them experience in solving problems. I'm looking forward to what the new year will bring. It's time the educational software market catches up with the new-car market!

Don't forget to enter the contest to name this column. You have until March 31, 1984 to enter. If you send in the winning entry, you will receive a year's free subscription to *Peelings II.* For complete details, see *Peelings II,* V5N1 (1984).

Send your entries to:
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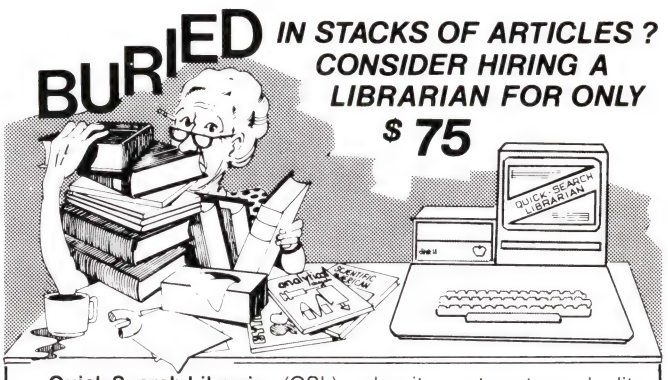
Write to me at the same address and let me know of your interests and concerns in regard to computers and education.

Best Regards,
Sandy□



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Business Solutions (No. 2)

by Alan Shalette

In this issue:

Database Systems: What You Need Is What You Get (Part II)

Tip Sheet: Considering a Low-Cost, Daisy Wheel Printer?

DATABASE SYSTEMS: WHAT YOU NEED IS WHAT YOU GET (Part II)

Last time, (*Peelings II* V5N1, 1984), I described the first steps in sizing up a database/file management (DB/FM) application to select an appropriate software package. They included determining:

- Exactly what you want to run and the way in which you will run it.
- Information you will keep in your files.
- Processing steps and other handling characteristics needed to enter, maintain, and use the information.

Sample Applications

To illustrate the analysis, I outlined two different types of applications. The first was a Research File which could be used to keep bibliographic references and abstracts of key information contained in each. Each record might contain both fixed and variable data--e.g., fixed regarding the source publications, dates, and authors and variable with regard to the lengths and contents of the associated abstracts. A variable number of keywords would also be assigned to each record. They would indicate the nature of information contained in the abstract. Records could be accessed by searching the contents of either the fixed or variable fields or by specifying one or more, or a range of keywords.

The second example was a Time and Expense Accounting system which could be used to record employee T&E data and produce summaries by employee, client, project, type of expense, date, vendor, and the like. In this case, we're interested in manipulating both text and numbers. Aside from the several types of 'sort, total, and report' summaries indicated above, we might want to perform calculations within records such as multiplying hours worked by the employee's billing rate to calculate time charges.

Popular Systems

When confronted with these two types of needs, a typical computer store salesperson's first reaction might be to pick one of the popular DB/FM systems such as PFS or VisiFile. These systems are reasonably priced and sell in sufficient quantities that the salesperson may even have had experience demonstrating their features and operation. Now what?

Closer Look

In the T&E Accounting application, data quality is a must. Extensive validity checks should be performed when data is entered from employee timesheets or other source documents. For example, you'd want to ensure:

- Employee and vendor names or numbers are correct.
- Each employee charges time or expenses to valid and appropriate job or client numbers.
- Employees don't charge more than a given/fixed number of hours per time period.Your operator could perform these checks as the data are entered. But it would be more efficient if the system performed them automatically.

You might also like to: have the system look up billing rates for each employee (and job) so they won't need to be reentered in each record; allow a variable number of time and expense 'lines' for each employee during each time period--depending only on each employee's activity during the period; store specifications for all your routine management reports and be able to run them as a package rather than one at a time; send key data to a graphics system so they could be plotted for management analysis; or send output to preprinted forms such as invoices or statements.

Unfortunately, you'll find that the more popular, generalized DB/FM systems don't perform these functions very well--if at all. Most will distinguish between alphanumeric (mixed text and numbers) and numeric data in performing validity checks but that's

about all. They may also be able to lay out reports for preprinted forms and send selected data to other systems (via DIF files), but they can't do table lookups or print more than one report without manual intervention. Further, they can't handle variable-length records. This means that you might have to enter a new record for each expense 'line' and re-enter 'header' information (e.g., employee name/number, date, and other fixed data) for each record. This takes more data entry time and uses more disk storage space than variable-length records.

In the Reference File application, you'd like to have an unspecified number of keywords per record and a fairly large text field in which you could enter abstract information without worrying about data formats. In fact, you'd like the system to provide word processing functions to facilitate text entry. The popular DB/FM systems won't efficiently handle these requirements either. They typically limit to fairly small numbers: 1) the number of keys (key fields) in each record; 2) the total number of characters you can have in all your key fields; and 3) the total number of characters you can have in any other field. Their text editing capabilities are also quite limited.

Getting The Right Answers

Obviously, I chose two sample applications which aren't well handled by the popular packages to emphasize that you must 1) carefully assess your requirements, and 2) match them to the capabilities of the systems you might use.

Requirements analysis was discussed in the prior Business Solutions column and reviewed earlier in this column. Database Standards previously published in *Peelings II,* V4N7 (1983) and individual package reviews can help you match your requirements to available systems. Don't expect others to perform these tasks for you unless they understand your needs in detail, are aware of the full array of available software, and can take the time to work out a detailed analysis.

Next time we'll look at two types of DB/FM software which can come close(r) to satisfying the requirements of the two sample applications. Later, we'll look at application-specific software and discuss trade-offs between generalized and application-specific systems.

TIP SHEET: Considering A Low-Cost, Daisy Wheel Printer?

You've wanted a true, letter-quality printer and have been attracted by the increasing number of daisy wheels in the $400 to $600 price range. Before you buy, be careful to compare your throughput requirements with the printers' speeds.

Typically, low-cost daisy wheels are rated at 10 to 15 characters per second (cps), maximum. This rate is exclusive of vertical scrolling to move the paper and to return the print head to its home position. Sustained, full-page printing can be considerably slower. (See the Life With My Printer discussions elsewhere in this issue).

Let's say that actual throughput averages 10 cps. At this rate, it will take about 3 to 4 MINUTES to print a one-page letter (30 lines of 75 characters each). Can you afford to tie up your computer and its operator this long for routine work?

If not, consider the following approach:

- Use a higher-speed (80 to 100 cps) dot matrix printer for routine internal text printing and graphics work and to run drafts of work you will send to your daisy wheel printer.
- Use one of the many print buffers now available to drive your daisy wheel printer, freeing up your computer and your dot matrix printer while your daisy wheel pounds on.

Print buffers are priced at about $150 to $400 depending on their memory sizes and other functional capabilities. The cheapest buffers include about 8K of RAM which should be able to store about 3 1/2 pages (30 lines of 75 characters) and free up your computer for about 15 minutes at a time. With 64K, you'll be able to store about 25 to 30 pages and free up your machine for up to 1 1/2 hours. Actual time savings and capacity requirements will, of course, depend on your specific applications.

Unless you do large amounts of multi-document or graphics printing, I'm not convinced that print buffers are 'a must' for higher-speed printers. However, you can improve your flexibility by buying a buffer you can use with either printer at a fairly low additional cost.

Readers are encouraged to send comments, questions or suggestions via Peelings II or Source SMAIL to user ID TCS834.□

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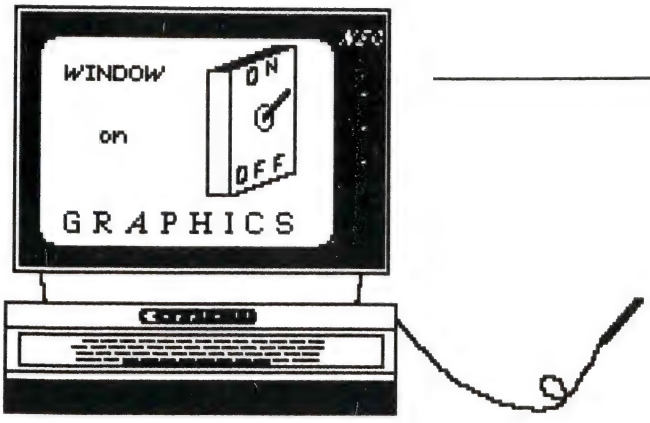

By Michael Weasner

In this issue we will discuss the normal graphics modes of the Apple II. I say "normal" because we won't get into modified graphics or the Apple //e's double Hi-Res modes. Perhaps in a future article. I will attempt to give the new Apple II or //e user an appreciation of the normal graphics modes. We will discuss the softswitches used to display the various screen modes and show a way to save pictures from some protected programs. Hexadecimal values will be used and indicated with a "$" (decimal values will be in parentheses).

First, I suggest you have a slave disk available with sufficient free space for at least four Hi-Res files (136 sectors). A slave disk is any disk created with the DOS 3.3 INIT command and which has *not* had MASTER CREATE (from the DOS 3.3 SYSTEM MASTER DISKETTE) used on it. If you don't have a slave disk available, make one up now. The HELLO program should do nothing.

Next, some memory maps:

Text and Lo-Res page 1	**$0400 to $07FF**	**(1024 to 2047)**
Text and Lo-Res page 2	**$0800 to $0BFF**	**(2048 to 3071)**
Hi-Res page 1	**$2000 to $3FFF**	**(8192 to 16383)**
Hi-Res page 2	**$4000 to $7FFF**	**(16384 to 32767)**

Text page 1 is the normal text screen you see with a 40-column display. When you type the Applesoft BASIC graphics command "GR," you will see the Lo-Res page 1. Note that not all of the 1024 bytes of memory are displayed on the screen; 64 bytes are reserved as "scratchpad" locations for use by peripheral cards and have nothing to do with the displaying of text or graphics. Text and Lo-Res page 2 are rarely used since they occupy the same area as an Applesoft BASIC program.

Some recently published articles have demonstrated methods of using text page 2 as a "HELP SCREEN" to be displayed whenever the user requests it. We won't get into that level of detail, but note that the pointers to the start of an Applesoft program (located at decimal 103 and 104) can be changed so that your Applesoft program will be loaded above the text and Lo-Res page 2, should you desire to use this screen area for text or Lo-Res graphics.

Hi-Res pages 1 and 2 are used in many applications and the only real limitation to using them is the size of an Applesoft program. Without using routines to skip over these areas, you may be limited to using only Hi-Res page 2 from a large Applesoft program. Of course, assembly language programmers do not have this limitation.

There is a difference in what is displayed when you type HGR or HGR2, but by using some softswitches, we can tell the Apple to display exactly what we want, whether in Lo-Res or Hi-Res, and with either page. By the way, many people are confused by the use of the term "page" when talking about the display modes. Feel free to substitute "screen" for "page" everywhere in this article if you prefer to think in terms of Lo-Res or Hi-Res screen 1 or 2.

The following memory locations are the display softswitches:

Graphics	**$C050**	**(49232 or - 16304)**
Text	**$C051**	**(49233 or - 16303)**
Full screen	**$C052**	**(49234 or - 16302)**
Mixed (w/4 lines text)	**$C053**	**(49235 or - 16301)**
Page 1	**$C054**	**(49236 or - 16300)**
Page 2	**$C055**	**(49237 or - 16299)**
Lo-Res	**$C056**	**(49238 or - 16298)**
Hi-Res	**$C057**	**(49239 or - 16297)**

They are lumped into groups of two because you will use one or the other from a group to activate the screen mode you want. To use any softswitch in the Apple, it is only necessary to "touch" the switch. A POKE or a PEEK from BASIC, or just entering the address from the monitor, is all that is required to "flip the switch on." To try this out, get into Applesoft BASIC and type the following POKEs:

```
POKE 49232,0 : POKE 49239,0 : POKE 49236,0 : POKE 49235,0
```

Graphics	Hi-Res	Page 1	Mixed

You are now looking at Hi-Res page 1 in mixed mode. You may have to press RETURN a few times to get the cursor down into the window at the bottom of the screen. Now, type: **PRINT PEEK(- 16302)** to change to full-screen graphics. Well, now you've done it! How are you going to see what you type? This result is almost the same as if you had typed HGR2 except that we are looking at page 1 just as if you had typed HGR. But HGR always results in the mixed display with four lines of text at the bottom of the screen. So we see that by using the softswitches, we can alter what is displayed. To return to the text screen (so you can see what you are typing), you could toggle the switches again with POKEs or PEEKs, but typing TEXT is a lot less error-prone. To use the switches from the monitor, type:

CALL -151

(to get into the monitor), and then just type the following addresses:

C050 C052 C054 C057 <**RETURN**>

You are now looking at Hi-Res page 1 in full-screen mode. OK, now how to see your typing? Just enter (carefully): **C053** and you are into mixed mode. Now to get back to all text, type: **TEXT**. Oops! Your Apple didn't like that (it probably beeped). That's because TEXT is a BASIC command, and you must be at the BASIC prompt before it will work. Type a CTRL-C to re-enter BASIC and then TEXT. Now you are back to the normal text screen.

By the way, for all of this playing with the screens, you have either been looking at garbage on the Hi-Res screens or a blank screen if you have typed HGR or HGR2 at some point. If you have some picture files on disk, try BLOADing a couple: **BLOAD** <*filename*>, **A$2000** and then **BLOAD** <*filename2*>, **A$4000**. The reason for loading two different pictures is so that you can tell which Hi-Res screen you are looking at. Then play with the switches. (In case you are wondering why I used hex values for the load addresses, I find that 2000 and 4000 are much easier to remember than 8192 and 16384.) Feel free to look at the Lo-Res screens in both full-screen and mixed modes. Try looking at Lo-Res page 2, full screen, and LIST an Applesoft program. Colorful, isn't it? Note that whenever you have asked for page 2 in either Lo-Res or Hi-Res, and have mixed mode on, the text at the bottom will come from text page 2.

OK, so now that you know how to toggle the display softswitches, of what good is all this knowledge? There are two benefits besides the obvious use to programmers: (1) Using the softswitches does not clear the Lo-Res and Hi-Res screens like using the commands GR, HGR, and HGR2 does. You can look at pictures without typing the command first and then BLOADing from disk. (2) You can now save pictures from some, repeat, *some* protected disks. To save pictures from some protected programs, you need a slave disk (now you know why I said to make one), and you may also need the old monitor ROM chip. "Uh, what's that?" you ask. That is the earliest monitor ROM that came with the earliest Integer BASIC Apples. When Apple came out with the Apple II Plus, they replaced the Integer BASIC ROMS and the old monitor ROM with the Applesoft ROMS and the Autostart monitor ROM. To maintain compatibility, an "Integer Card" was sold that duplicated the configuration of the early Apples. Most of those Integer Firmware cards also had the old monitor ROM whose chief virtue is that pressing RESET causes an uninterruptable jump to the monitor! That is just what you need to produce graphics dumps of protected games.

To check what kind of monitor you have on a firmware card:

1. **Flip the red switch on the firmware card to activate the card.**
2. **Hit RESET. If you see a *, skip step 3. You have it!**
3. **Type: Call -151**
4. **Type $FBB3 (The so-called "signature" byte.)**
5. **Type CTRL-C to return to BASIC.**

Results:

$38 Old monitor ROM
$EA Apple II Plus Autostart ROM

(The signature byte on a //e is $06.) If you do have a firmware card, then boot your protected disk and, only after the program is running, flip the switch on the card to the alternate position to activate the card's ROMs. (The program cannot detect the change until RESET is hit. By then, it is too late!) When the program gets to the point where you want to save the picture, press RESET. Most programs will drop into the monitor at this point. Some programs may reboot, so be certain you have removed your protected disk and inserted the slave disk before pressing RESET.

Now enter the following at the * prompt:

C050 C052 C054 C057 <*RETURN*>

to display Hi-Res page 1. If you want to look at Hi-Res page 2, type: **C055** instead of **C054**. Make a note of which page you want to save and then type: **6 CTRL-P** to boot the slave disk. *The reason for using a slave disk is that booting on a master overwrites part of the Hi-Res page 1 memory, whereas booting with a slave preserves the Hi-Res screens.* Once the boot process starts, press CTRL-C to interrupt any BASIC HELLO program which might be run. Once at the prompt, type:

BSAVE <*filename*>, **A$2000,L$2000**

for Hi-Res page 1, or

BSAVE <*filename*>, **A$4000,L$2000**

for Hi-Res page 2.

Now the picture will be saved to disk and can be used with other graphics programs. The same techniques can be used to save the Lo-Res or even the text screens. Just enter:

BSAVE <*filename*>, **A$400, L$400**

for Lo-Res or text page 1, or

BSAVE <*filename*>, **A$800, L$400**

for Lo-Res or text page 2. Using the softswitches, you can load any of the files from disk and then view or use them in your programs.

One last tip for this issue. Although using the hex values of $2000 and $4000 for the addresses and lengths of the Hi-Res pages makes them easy to remember, it wastes a sector per file on your disk. If you save the Hi-Res screens with a length of $1FF8 instead of $2000, you will use only 33 sectors per picture versus the normal 34 sectors. Try it, you'll discover that the entire picture is still saved. □

How the Dow Jones Averages in Software

Dow Jones & Company
P.O. Box 300
Princeton, NJ 08540

PRODUCT	PRICE	RATING
Dow Jones Market Manager	300.00	C+
Dow Jones Market Analyzer	349.00	A−

By J. Kent Miller

Dow Jones is now the biggest name in investment software--and not because of its software. Its market index averages and its publication of *The Wall Street Journal* and *Barron's* have given the Dow Jones' name a recognition factor envied by its competitors. Consider the well-to-do investors, uncomfortable with the word "software" but wanting to automate their portfolios on the new home computer. Will they select a product published by IsiRich software, or Dow Jones? Will your neighborhood computer store stock the Dow Jones line, or Bogus 1-2-3's products?

But does Dow Jones deserve such loyalty? Does their published software match the quality of their printed publications? Is it priced fairly? In this article we will explore the current offerings of this giant in its investment information field and answer these and other questions.

ALL IN THE FAMILY

The Dow Jones programs share certain characteristics. All are now packaged in the same attractive gray and cranberry, softly padded, 8 X 9-inch three-ring notebook. The documentation is slick and fairly complete, easy to read, and adequately indexed. Disks are presented in a plastic three-ring holder at the end of the notebook. Program disks are copy protected, but backup program disks and one blank data disk are supplied. There is a 1-year guarantee on disks, with a $30 replacement charge thereafter. Dow Jones usually takes credit as coauthor along with the software company actually developing the published program.

You become a subscriber to the Dow Jones News/Retrieval service with the purchase of any of these programs. Included with each program is a contract to be signed and an 800 number to call to obtain your password. Then you can begin retrieving data by modem, using a sub-program in each of the software packages; and DJN/R can begin billing you for on-line charges for the supplied information. (In fact, Dow Jones Connector does nothing more than provide a contract and documentation for access to the twenty-some DJN/R data bases.) The 200-page Fact Finder, sent to you or included in Connector, contains all of the operating instructions and stock symbols for use of the DJN/R data base.

Each of the programs assumes you have an elementary understanding of how your printer operates and how to get your modem and disk drives connected. Disk saves, initialization of disks, and other such tasks are handled within the programs, so no understanding of Apple's DOS is required. System requirements are often quite specific: e.g., with Market Manager, the Hayes Micromodem II is the only modem supported and must be in slot 2, the printer card must reside in slot 1, and so on.

All the programs will run on the Apple //e or a 48K II+ with one disk drive. A printer and modem are quite desirable; a printer is required for Market Manager. Unfortunately, none of the data in these programs is transferable between the programs. This means that for automatic retrieval of data, you will have to go on-line to DJN/R to get the same prices of the same stocks for use in several different programs.

Dow Jones provides toll-free user support for all of its software and its data base until 11:00 p.m. on weekdays and until 5:00 p.m. on Saturdays (EST). I have had excellent response when requesting technical help. When my original Market Analyzer would not run on our new //e, I called the 800 number and was told simply to return my very used software to the retailer and he would exchange it, for free, for the version now compatible with the //e. What a pleasant surprise: no update charge. The always-available, free customer support is perhaps the strongest single feature of this family of programs.

Dow Jones does not give away the razor just because you'll be buying their blades forever. Each of these programs is expensive when compared to most micro software. However, the tax-deductible cost should be more than recovered with the enhanced decision making or record keeping. Now for a look at the individual programs.

DOW JONES CONNECTOR

Apple once sold, for $95 suggested retail, the "Dow Jones News & Quotes Reporter". This is a piece of software with access only to quotes and news but not the other data bases in DJN/R. This was followed by "Dow Jones News/Retrieval Service" at $99.95 retail, a host-specific communications package with an automatic dial and log-on routine. It provides access and retrieval of data from the DJN/R data base which includes, in addition to financial news and stock quotes, the Official Airline Guide, movie reviews, weather in major cities, sports news, and an electronic encyclopedia. Both of these packages might still be found in your neighborhood computer store.

These communications packages are not nearly the value of a good data communications package (examples: ASCII Express by Southwestern Software and Data Capture by Southeastern Software), and they are far more limited. You cannot configure for other host computers, and there is little flexibility, even with the DJN/R service. Still, for limited use, and given its ease of use and customer support, it probably fits the needs of many DJN/R subscribers who might be overwhelmed by the possibilities of configuring a general communications program.

The current offering, the Dow Jones Connector, is not really software, although it is packaged just like the other family members. It comes with no disk, only the contract for your billing number. In the three-ring notebook there is nothing more than the reproduction of the Fact Finder blue book sent to all who sign up with DJN/R. The Connector package is actually part of each software program and should only be purchased separately if you're not planning to buy any Dow Jones software. With the Connector you will need your own separate data communications package.

DOW JONES MARKET MANAGER

(w/Micro Business Systems, Inc.)

This program is advertised as a portfolio management program for the private or professional investor who needs an accounting and control system. It can be compared to a number of such programs on the market (see the review of "Portfolio Master 3.1", *Peelings II,* V4N6). While it falls short of the competition in many respects, it is a great improvement over "Portfolio Evaluator", the original program which allowed no manual update of prices and which had no capacity to record sales and purchases for year-end tax records.

Market Manager will maintain up to 26 different portfolios with a maximum of 150 tax lots. It will automatically dial, log on, and price securities from the Dow Jones Quotes data base (part of the DJN/R and which increased in price by 50 percent at the beginning of this year: from 10 cents per minute to 15 cents per minute for "standard" subscribers in "non-prime" time--i.e., weekends and after 6:00 p.m. local time). Prices can also be entered manually. The program will print a currently priced listing of each portfolio or a list by security. It will print gain- or loss-to-date reports by portfolio (segregating long- and short-term gain), and year-to-date transaction lists

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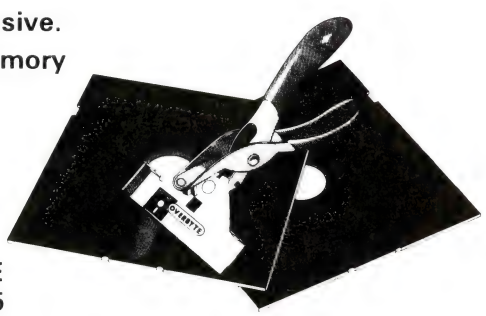

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SIGNATURE (for charge cards) _____

for audit trails of all your computer entries.

Entry of data is a snap. The program is easily mastered within a few hours. Error trapping is excellent. There are utilities to allow for easy deletion of transactions or entire records. The minimal system configuration is quickly accomplished. The audit trail file is a useful and rarely seen feature, allowing a retrace of all computer entries for the year. What the program does, it does well. However, there are limitations, especially if you expect the program to live up to its advertised capacity.

While the program allows data entry for option purchase or sale, it does not allow for entry of expirations or provide for any warnings to execute or close on this wasting asset. Short sales are allowed. Printouts are in 80 columns, although Market Manager does not configure to 80-column cards for screen displays or provide alternative 40-column screen listings. Thus the four System Reports can only be sent to the printer.

To start the new year, a new disk is required. After backing up the current data disk, all transactions are deleted, and a new tax year can be recorded. More preferable is the ability to Rename files under Apple DOS, thus Saving a portfolio as "Jones 12/31/83" so that successive years or at other dates the portfolio could be compared without needing multiple disks. I feel that file naming under DOS would also be helpful; Market Manager requires that each portfolio be assigned one alpha character, but the program lacks a catalog for these. A printed reference list is supplied as an Appendix called "Account Registration Form". However, this would defeat the program's convenient feature of entering transactions for multiple portfolios in a string of entries with single-character portfolio identification, saving the time required to open each separate portfolio file before an entry.

There is no listing to show weighting of the portfolios by type of security or specific stock, which is a typical and desirable feature of such portfolio managers. There is no maturity/expiration table for bonds or options. There is no automatic adjustment for stock splits. There is no way to record more about a security than its stock symbol and whether it's a stock, bond, option, mutual fund, or treasury issue. The capacity to record the interest rate of a preferred stock, the maturity of a bond, or even the name of a company represented by the symbol would be most helpful.

Market Manager has a much improved terminal mode compared to the "E-Z Terminal" program found in both Market Analyzer and Market Microscope. For example, the Return key (the reflex response for Apple users when they are ready for more data, and the key usually required by DJN/R before your query is transmitted) is the key that clears the print buffer in E-Z Terminal. Also, in E-Z Terminal, dumping the print buffer to your printer requires that you stay on-line to the DJN/R data base, incurring logged-on expenses while waiting for your printer to print the buffer of retrieved information. Market Manager's terminal mode allows off-line printing and restores the Return key to its usual function; Escape C is used to clear the buffer.

In summary, Market Manager provides an adequate program to track and evaluate several portfolios and most transactions. However, if you are writing covered calls, for example, this program is too limited for your needs. It provides improved access to all the DJN/R data bases, is easy to learn and operate, and comes with dependable, established, toll-free customer support.

MARKET ANALYZER

(w/RTR Software, Inc.)

Market Analyzer is for technical analysis; that is, the consideration of nothing more than past price and volume data which is manipulated in various and complex mathematical formulas. Market Analyzer performs here at speeds which really exhibit the power of the personal computer. From the study of the charts created by this number crunching of historical market data, the technical analyst believes the future can be predicted.

This program was marketed for some time by RTR before Dow Jones arranged to publish it. It has been updated by RTR and, in its present form, is certainly the premier technical analysis tool for micros. It is also available for the IBM PC. Its E-Z Terminal mode, described above, is it's major drawback, but the terminal mode is not the reason to own this program, anyway. Its retrieval of historical stock quotes (up to 1 year of trading days recording high, low, close, and volume) is automatic and independent of the E-Z Terminal operation.

Market Analyzer automatically retrieves (or you can manually enter) the data from which you can plot, in monochrome or color, charts showing individual stock performance over whatever period of trading time you select within the stored number of trading days on your disk. Relative volume is shown below the chart. You can also plot several stocks against each other ("comparative charts") for any stocks with histories recorded.

Then the fun begins. On the individual or comparative charts you can plot moving averages (simple, weighted, or exponential), trend lines, relative strength comparisons, speed resistance lines, oscillators, and more. You can add to the program your own formulas with user jump routines for additional displays over the individual or comparison charts. Graphs may be saved to disk or, with programs you supply, can be dumped to your printer immediately. In Auto Run, a series of charts can be programmed, then repeated for selected stocks and stored to a data disk for later review or printing.

There are appropriate utilities for adding or deleting stock histories, adjusting for stock splits, and dropping older units. Past stock price and volume can be listed to the screen or printer. All formulas are given, together with discussion, examples, and a bibliography for further study. Error codes are minimal but easily supplemented by the toll-free assistance number. On my wish list is the automatic retrieval of stock index histories--high, low, close, and volume--for direct comparison of a specific stock with, what else, the Dow Jones Industrial Average or say, the S&P 500 index.

This program is powerful and comprehensive, with several features requiring more than casual interest in computers. However, Dow Jones represents that it will help with screen-dump programs and other routines that require some user programing for maximization of Market Analyzer. Whether you believe in technical analysis or not, you must admire the program; more than any program in the Dow family, Marker Analyzer does very well what it represents it can do.

In the next issue: The Dow Jones Market Microscope. □

Koalapad Touch Tablet & Micro Illustrator

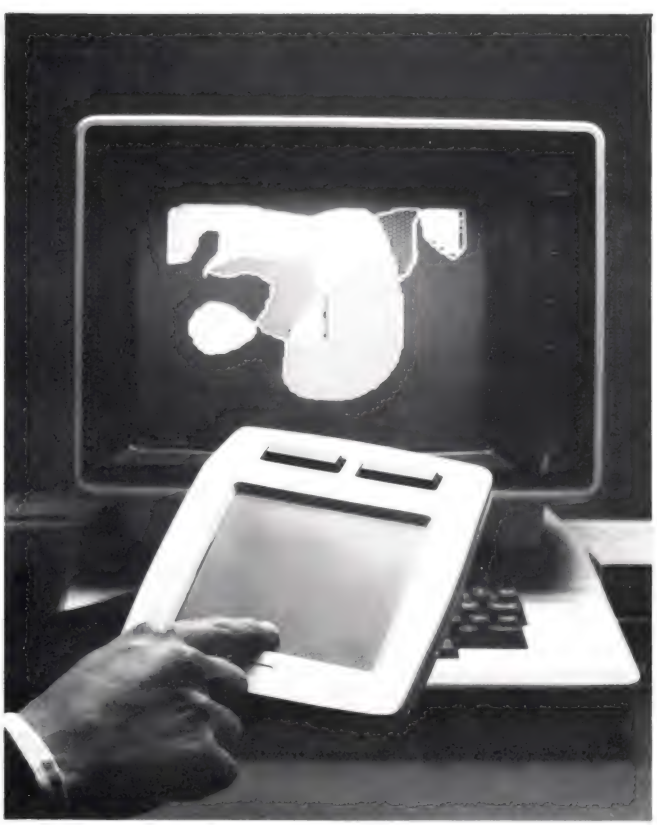
by Steven Dompier (Micro Illustrator software)

Koala Technologies Corporation
253 Martens Avenue
Mt. View, CA 94040
800-227-6703

$124.95

Software Unlocked

Reviewed by Monty Lee



INTRODUCTION

The KoalaPad is a type of Apple tablet that plugs into the game port. The KoalaPad is compatible with the Apple II and //e, as well as other brands of computers. The KoalaPad package comes complete with a software program entitled "Micro Illustrator" which allows you to create beautiful, high-resolution computer graphics.

The KoalaPad touch tablet is a hand-held peripheral that you use in place of a paddle or joystick. The rubberized drawing surface is about 4 X 4 inches and uses some innovative technology in determining X,Y coordinates from an input on the surface. You can draw on the tablet with a stylus included in the package, or even use your finger. The tablet also has two large touch buttons that can be used like those on a joystick. The tablet is fairly lightweight and has a tilted surface for more convenience when set on a desk or table.

DOCUMENTATION/INSTALLATION

The KoalaPad is very neatly packaged in a 13 X 10 X 2-inch box which includes the KoalaPad touch tablet and connecting cable, stylus, manual, and Micro Illustrator package. The manual indicates that a protective overlay for the touch tablet is included, but it is not included in the Apple version. The installation manual is a nine-page booklet of which only three pages pertain to the Apple. Installation is identical to that for a paddle or joystick; just insert the connector into the paddle port. You must be careful when inserting the connector because the pins are very short. If you do not seat the connector, the touch tablet will not work correctly. It would have been better to have the pins as long as those on joysticks for easier insertion and better electrical contact. The KoalaPad can be used with external game I/O port expanders.

The Micro Illustrator documentation is a short, 14-page booklet that describes the operation of the software package. The information is concise and illustrated with pictures of actual screen displays. The program is extremely easy to operate, so the documentation is sufficient to begin operation. Additionally, you can obtain HELP directly from the program for quick reference.

OPERATION

For most programs, you can use the KoalaPad just like a joystick. In fact, it is often easier playing games with the touch table. The BASIC interface is identical to the paddles, using a PDL(0) and PDL(1).

There are some problems associated with using the pad. First, according to Koala Technologies, the pad may not work properly with many peripherals for the Apple, or with a Shift-Key modification. Koala claims that the Apple must be clean of all peripherals. However, the pad seems to work fine in most cases with many of the peripherals on the market.

Occasionally the pad will not properly recognize a touch input (or lack of one), or will indicate a null (zero) or full (255) input when none exists. This can create havoc, particularly while using it to draw. According to the manual, the pad values are supposed to remain at the last value input and not reset.

MICRO ILLUSTRATOR

Perhaps the best way to evaluate the operation of the KoalaPad is to use it with the Micro Illustrator graphics package. To use the Micro Illustrator, simply boot the unprotected diskette. You will be presented with a graphics menu. (see figure 1)

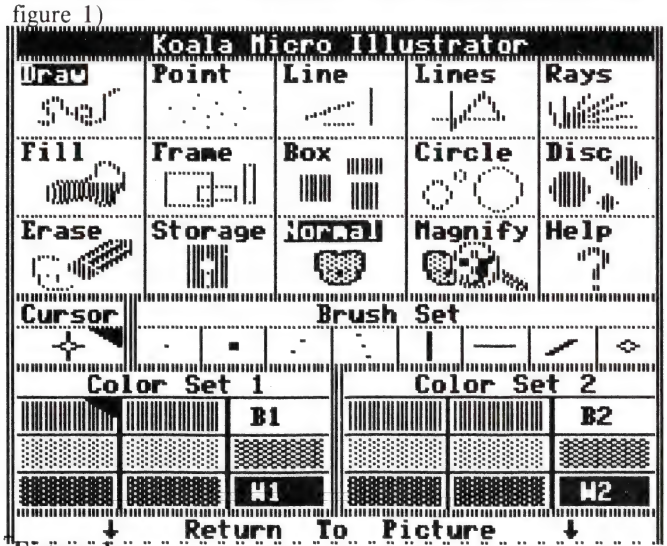


Figure 1

From this menu, every graphics option you use can be selected. To select an option, move the stylus or your finger on the pad until the display cursor is within the box of the desired selection; then press the left button on the pad. A short, beep and a highlight appears in the box to confirm your choice.

For example, to draw a picture you would move the cursor up to the DRAW box and press the left button. Then you would select the size BRUSH desired and the COLOR. To return to the picture, either move the cursor to the bottom of the screen and press the button, or press any key on the keyboard. You will now be on the Hi-Res page with your picture. To draw, just move the stylus around on the KoalaPad while pressing button 1; to stop drawing, merely release the button. To return to the menu, press button 2.

If you use your finger instead of the stylus, you must be very careful not to accidentally touch the pad surface with any other part of your hand, or else you will introduce spurious inputs on your screen while drawing. Occasionally the pad will not recognize an input, and you will be forced to use the keyboard. Additionally, if you draw or plot too close to the borders of the screen, the program will pop back to the menu instead of drawing.

To effectively use the Micro Illustrator, you need to have a color monitor or TV. If not, you will be unable at times to distinguish cursor position versus plotted points. This is particularly evident in the ZOOM mode where the Apple Lo-Res color graphics screen is used to zoom into the selected area of your Hi-Res picture. Unlike other software packages that have a zoom feature, Micro Illustrator's provides an excellent color rendition of the corresponding Hi-Res area.

The Micro Illustrator is a very sophisticated graphics package, especially considering that it is included with the KoalaPad. The DRAW, POINT, and LINE modes are similar to other graphics programs. The FRAME, BOX, CIRCLE, and DISC commands are found in only the more sophisticated programs. The FILL command is extremely fast and thorough. Additionally, it can be stopped at any time during the operation and reversed in most cases. The only thing lacking in the Micro Illustrator package that keeps it from being an outstanding program is the ability to enter text on the Hi-Res screen.

Finally, once the picture is completed, you can save it to disk. Unfortunately, to LOAD or SAVE a Hi-Res picture, Micro Illustrator requires the prefix "PICTR." to be present. If you don't want it, you will have to backspace over it. As a nice programming feature, Micro Illustrator includes a set of disk aids that can be used within the program to allow the use of any DOS command, including RENAME and INIT. Thus there is no need to worry about running out of room on a diskette and having to INIT a new one.

SUMMARY

Overall, the KoalaPad and Micro Illustrator are an excellent package. Either the KoalaPad touch tablet or the Micro Illustrator package alone would be rated at least A-. Combined, they are an excellent addition to the Apple. The KoalaPad is particularly easy to use, especially for children. As for drawbacks, the occasional spurious input is annoying. It is probably due in part to the short pins and lack of a solid connection. The only other significant drawback is the previously mentioned inability to enter text on the Hi-Res screen.

The KoalaPad is an attractive, low-cost alternative to a graphics tablet or light pen. The ease of use of the Micro Illustrator software makes it particularly attractive to the novice. The KoalaPad and Micro Illustrator package is a highly versatile drawing system and deserving of the *Peelings'* rating.

(Author's Note: A separate programmer's manual is available from Koala Technologies for $15.00 and includes all the information that should have been provided in the KoalaPad manual on using the pad from your own programs. There are also several additional software packages, both games and graphics utilities, now available for the KoalaPad, and *Peelings* hopes to review these programs in the near future.) □

Magellan Light Pen System

Magellan Computer, Inc.
4371 East 82nd Street, Suite D
Indianapolis, IN 46250
317-842-9138

$189.95

Reviewed by Michael Weasner

INTRODUCTION

The Magellan Light Pen System is similar to the Gibson pen, but there are differences in both hardware and software. One of the biggest differences is that the Magellan pen uses no slot. System requirements are 48K RAM, Applesoft, and a disk drive (drive 2 is optional). Graphics printers are supported but need an interface with dump capability. The software consists of a machine language driver and an Applesoft BASIC drawing program. Some text fonts and sample programs are also supplied on the unprotected disk. A pattern-editor program is used to create/edit patterns used by the area-fill routine of the drawing program.

DOCUMENTATION

The manual is a well-written, 40-page explanation of the QUICK DRAW program and the AMPER-PEN driver. Some technical information is provided, and there is a table of contents. Commented source listings of sections of AMPER-PEN are included in the manual and on the disk as both a binary source file and a standard text file. These should be compatible with most assemblers; they assembled without error using the Big MAC assembler. Separate installation instructions (Apple II and //e) are provided and, being separate, can be put away once the pen is installed. Instruction sheets for the fill and pattern-editor routines are currently provided separately since they were only recently added to the software.

INSTALLATION

To install the pen, a small circuit board is inserted into the Game I/O port, and a wire is attached to the video pens near the port. Any device which was attached to the game port can now be plugged into the pen circuit board. Eighty-column card softswitches or RF modulators can also be plugged into the card. All normal operations of your Apple are unaffected by the presence of the pen.

A bracket (supplied) is to be clamped over the rear of the Apple's case, but I had two problems with this. First, one of the openings on my Apple lacked enough room for the bracket due to other devices; and second, where there was room, the mounting screws would touch the card in the slot by the opening. Consequently, I left the bracket unmounted, and with one possible exception, I have experienced no problems. This is not to say that others won't have problems; when possible, the bracket should be mounted for grounding and reducing RF interference.

AMPER-PEN

Like the Gibson PENTRAK, the Magellan AMPER-PEN machine language driver supplies the operating system for the pen as well as offering the user some simple graphics commands. When loaded, all the necessary setups are accomplished, and the user can then utilize the & commands from either the keyboard or an Applesoft program. Unlike PENTRAK, which resides just below the DOS buffers, AMPER-PEN is loaded just above the second text/Lo-Res page, with the start of Applesoft BASIC programs being moved to above the second Hi-Res page. This allows use of both text/Lo-Res pages and both Hi-Res pages and prevents overwriting of the driver by BASIC programs. AMPER-PEN is less protected from erasure than PENTRAK, and BRUNning AMPER-PEN erases the current Applesoft program from memory, whereas loading PENTRAK does not. Some of the 23 commands follow:

```
&DTn    --  display text page n (1 or 2)
&DLn    --  display Lo-Res page n
&DHn    --  display Hi-Res page n
```

These are similar to the Applesoft TEXT, GR, and HGR commands except that the display is not cleared with the & command. The following are used to clear and specify the drawing page:

```
&CLn (cn)        --  clear Lo-Res page n to color cn
&CHn (cn)        --  clear Hi-Res page n to color cn
&DRWn            --  draw on page n
```

Some commands are strictly pen related:

```
&CURS            --  cursor on/off
&SKETCH          --  sketch on/off
```

And others do useful functions:

```
&CIRCLE(X,Y,R)       --  draw circle of radius R with center at X,Y
&RECT(XS,YS,XE,YE)   --  draw rectangle with the corners indicated
```

SYSTEM TEST AND CALIBRATION

On initial boot, a "systems self-test and calibration" is run. This is a thorough check for conflicts with peripherals and improper installation of the pen. On-screen prompts are easy to understand and follow. Any errors found are displayed, and you are referred to the self-test instruction manual. Once the tests are passed, the user is prompted through a pen and monitor/TV calibration. Again, easy to follow. When the calibration is completed, the boot program is modified to bypass the systems check and calibration. Pen calibration can be accomplished either from within the QUICK DRAW program or by rerunning the Applesoft systems check program.

QUICK DRAW

This is a drawing utility for the pen and offers sketch, rubberbanding lines, rectangles, and circles, text entry, zoom mode, and color and pattern area fill. Any Hi-Res color can be selected for drawing or text, and there are several modes of operation. When using the pen, you rarely touch the keyboard (except for text entry). Unlike the Gibson pen, which is activated by pressing keys, Magellan pen operations are turned on by pressing a small button near the end of the pen with your finger. Menus are displayed (in Hi-Res) at the top of the screen, and work is done on the Hi-Res image displayed in the lower three-fourths of the screen. The menus cannot be removed, but a function exists to move the image down to allow work on the top one-fourth. The complete screen can be viewed at any time by pressing the Spacebar, but drawing is disabled while viewing. Disk operations for images and the fonts are available from the menus. Brush and cursor shape, and tracking horizontal and vertical lines can be selected from the main menu.

There are three tracking modes: a solid cursor, a transparent cursor (large white square), or a gray Lo-Res screen alternating with the Hi-Res screen 30 times each second. This latter mode provides a constant light source for the pen regardless of the Hi-Res background. The flashing is annoying at first but, fortunately, is not required that often unless you are drawing on a black screen. You print hardcopies by selecting the slot of your graphics printer and entering the command string for your interface card. A menu of print options would have been better since most users probably don't remember the commands.

Announcements

Special Offer To Subscribers

Many readers tell us about the reference value of ***Peelings II***. For some, a complete set of back issues has become an obsession, to put it mildly. We are always humbled by such enthusiasm for our rag, so we are going to propose a deal that, frankly, helps us both.

With any 2-year PAID subscription or renewal to ***Peelings II***, we will include, free of charge, a complete set of volume 3 or 4 (you name it). You can be a new subscriber or simply renewing. (If you are renewing early, please include a note saying "early renewal".) We'll have your entire set of back issues on the way post paid. This offer is limited and subject to availability of magazines. So hurry. **Offer expires May 31, 1984. There is no such thing as a free lunch, but this is close!**

Can You Keep A Secret?

Neither can we! 1984 is going to be an exciting year for Apple computer users. There will be new products for the Apple //e like ProDOS and mice and hard disks. The Macintosh is out and Lisa will be better than ever. ***Peelings II***, of course, will be covering all the new developments. Care for a glimpse of our future?

As always, ***Peelings II*** remains dedicated primarily to the evaluation of software and peripherals for the Apple II series of computers. Our goal is to remain the ultimate consumer's guide for the Apple II. Yet with the growing complexity and compatability of Apple systems, it will be more important than ever to understand how they relate and the options provided by new software and hardware. Look for new columns on word processing, investments & the Market, education, graphics, Lisa, Mac, and new products!

Another new feature will be the reader service card. It will allow you to easily request additional information about products advertised in ***Peelings II***. We are making some adjustments in order to bring you this expanded coverage, and this requires some development time. You may have noticed that you did not receive Volume 4 Number 9. Fear not. Your subscription has been automatically extended by one issue. We're sure you'll agree that the time we took will pay off, and we hope you'll like the improvements we have planned. Be sure to let us know.

A New Service To Our Readers

PEELINGS II is starting a new service for our readers and advertisers: the Reader Service Card. You may have seen this in other magazines: you circle the numbers of products you are interested in and send in a post-paid card. We will have readers service numbers in ads, in the new-products section, as well as with product evaluations. We will also use the cards to ask you questions from time to time and it will be used for other projects as well. The purpose of this card is to get you information as fast as possible from the vendor about his product. Often, the vendor has technical data or comparison charts that just will not fit into an ad. They would like to tell you more from their point of view. It also shows vendors that there is interest generated by the ad. That puts a warm glowing feeling in everyone involved. We hope you will take advantage of this new service. Our reader survey indicates that a large number of you are already requesting additional information from vendors, and this new service will make it easier.

The rubberbanding circles are the fastest this reviewer has ever seen. You select circle, point to the center, press the pen's button, and as you move the pen away from the center, a circle with the radius of the pen's new position is almost instantaneously drawn. Once it is the size you want, press the button again and you have your circle. The speed is due to the machine language &CIRCLE, but the credit is due to Magellan Computer for putting it in AMPER-PEN instead of relying on a BASIC drawing routine. Rubberbanding lines and rectangles are just as fast.

Text entry is easy, and there are some useful options. Character spacing can be set and fonts can be loaded from the master disk (seven are supplied) or from other sources compatible with the Beagle Bros' Apple Mechanic program (reviewed in *Peelings II,* V4N3). No font editor is supplied, but Apple Mechanic can be used, if you have it, to create fonts. Once entered, text can be positioned with the pen, or left-, center-, or right-justified. The I,J,K,M keys are used for precise positioning. Colors can be selected, or you can abort the entry and return to the main menu. A small incompatibility problem was noted with the Videx Enhancer II keyboard buffer. Unless the buffer is turned off, a "?" is included as part of the text string.

The zoom mode is the slickest I have seen, even though it is black and white only (like the Gibson zoom mode). The zoom area is displayed in Lo-Res, and at the top of the screen is a Hi-Res menu with two extremely useful displays on either side of the menu. On the left is a representation of the full Hi-Res image with a small box showing the location of the zoom area. On the right is the area you are viewing *but* presented in full-color Hi-Res graphics. Changes made on the Lo-Res portion show immediately on the Hi-Res portion.

To move around on the Hi-Res image, you could exit and re-zoom, but a pan function is available while in zoom. It works like the slewing mode of the Gibson MULTIDRAW program, but is totally automated. You can pan in any of eight directions by indicating the direction and pressing the button. All the images start moving towards the indicated area. You will see the small box move across the full image, the Hi-Res image area updated, and the image on the zoom screen move. Well done, Magellan.

The color-fill mode works similarly to the Gibson Penpainter program. A palette of colors and patterns is displayed from which you make your selection and then touch the area to be filled. Areas can be refilled, but you may not get what you expect since the fill routines work on areas bounded by white lines, and some patterns contain white lines. An "undo fill" option will remove the color/pattern last used. The fill routine is the fastest this reviewer has seen and is easy to use. Additional palettes can be loaded from disk when needed.

Palettes are edited using a pattern-editor program. This program must be BRUN since there is no menu of disk programs. Its operation is similar to operations in other modes of the Magellan system, but I was surprised to see something very similar to the Gibson Labs Info-Flow menu in the pattern-editor program (a good idea is worth repeating). With the editor, palettes can be loaded, edited, and saved to disk. The edit screen is similar to the Gibson Pattern Editor program in that there is a zoomed-in mode with a normal-sized representation at the top. There is even an option to set the color to its complementary color by toggling a button. A big difference from the Gibson patterns is that Magellan patterns only use four sectors on the disk. However, only half of the 56 patterns of each palette can be edited, but this means you will always have 28 standard colors/patterns in each palette.

The Magellan pen is easy to use, but there are some problem areas that reduce your ability to create good graphics easily. The problems stem from either the calibration of the pen, or the QUICK DRAW program. At some screen-brightness levels, I found the cursor would jump away from the pen much as the same magnetic poles repel each other. For some reason, the pen works best with the cursor's center offset from the pen point, but then you aren't pointing where the pen will be drawing. If the cursor is visible, this is less of a problem, but when it is not visible, as in zoom mode, drawing will require a lot of trial and error. The pen can be recalibrated using the I,J,K,M keys, but then you may find that menu selections are not made properly.

On the main menu, an arrow is placed by the function pointed to, but many times the arrow jumps to an unwanted function when the button is pressed. Some functions cannot be turned off until a drawing operation is accomplished, so you may get unwanted garbage on the image. In the zoom mode, the calibration problem means that text is lost because the program reads the abort option even though the set option is pointed at (no arrows are used in the zoom menus). Some functions are turned off after each use, so to repeat it, you must select that function again. Certain functions should remain on until turned off by the user. The same is true in text mode; once the string is placed, you are returned to the main menu. Text mode is probably going to be used to add more than one entry at a time, so the automatic exit becomes a nuisance.

To load a Hi-Res image, the filename must have a ".PIC" suffix. If it doesn't, you must exit QUICK DRAW (which erases the program *and* the driver from memory), rename the file, and reboot. Fortunately, QUICK DRAW is modifiable to eliminate the suffix requirement. I have some programs (protected) that add prefixes to graphics files; others (like Gibson pen software) require none. Since the usage of prefixes or suffixes is not standardized, I prefer utilities that do not require them unless necessary to protect the user.

SUMMARY

The Magellan pen should work with almost any TV or monitor (fast phosphor). It worked with my green-screen monitor, but I had some difficulty with pen tracking on my color monitor. Whether this is related to the grounding bracket is unknown. The Gibson pen works equally well on either.

The Magellan Light Pen System is a complete graphics utility but lacks some of the power of the Gibson pen. The potential is there, however. Magellan Computer has indicated that future versions of the software will be more powerful, but these will not be free of charge as was the Gibson final software. And the Gibson pen (now sold by Koala) has been reduced in price, making it even more competitive.

NOTE: Magellan Computer has a new product that may be available as you read this. It is a high-speed, true double-resolution graphics board with many possible uses, *and* the pen is compatible with it. We hope to review this product in the near future. □

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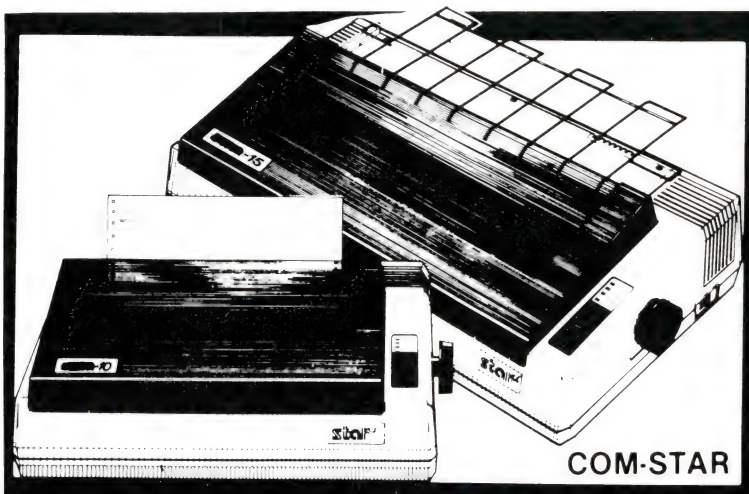

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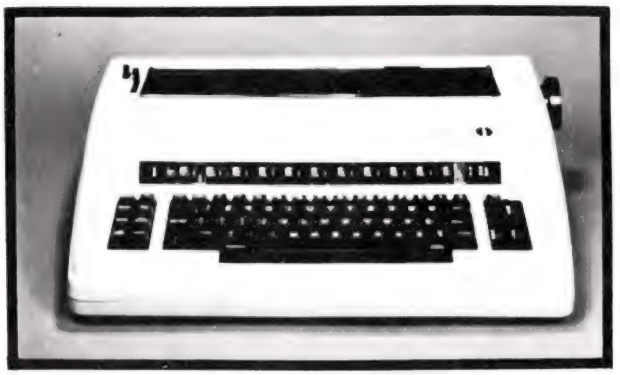

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Reviewed by Michael Weasner

INTRODUCTION

The Gibson Light Pen System has been discussed in two previous articles (Peelings II, V3N7 and V4N4), the former being a complete review of the hardware with the "Preliminary Software" and the latter, an update on the "Final Software." This review constitutes a final evaluation of the Gibson Light Pen System.

The Gibson Light Pen System requires 48K RAM and Applesoft to operate the applications programs except MULTIDRAW, which requires 64K RAM and ROM Applesoft. Multiple disk drives are supported as are hard disks, but volume numbers are not. Any color or black and white TV (with RF modulator) or monitor (including RGB) can be used; the exceptions are those monitors using a long persistence phosphor (e.g. Monitor ///, Amdek ///, Pi 3). Graphics printers are optional but only Grappler and PKASO type interface cards are supported.

DOCUMENTATION

The Pen manual is 105 pages bound into a 5-1/2 x 8-1/4 book. There is a Table of Contents and the instructions, including ample pictures (HIRES dumps), for installation of the pen, tutorials on the software, and modifications of the software are easily understandable. One flaw in the manual is in the area of pen calibration. The Main Menu program has a calibration mode (mentioned at the beginning of the manual) but making this calibration permanent is not discussed until page 100. No mention of vertical calibration is made although I found it necessary to make a small change to the vertical offset as well as the horizontal offset. There are some errors in the manual which can cause the inexperienced programmer some problems. For example, making the pen calibration permanent in the Main Menu program and the printer routine for MULTIDRAW both reference the wrong line number. For the advanced programmer who wishes to write Pen applications, the manual includes complete discussions of the ampersand (&) commands used in PENTRAK 2.0. Overall, the manual is well written but seems to have been written before the software was completely finalized. This will cause only the inexperienced user problems, which is unfortunate as operationally the Gibson Light Pen System is well designed for the inexperienced user.

INSTALLATION

Installation instructions are provided for Apple II, II+, //e (Rev A or B motherboards), Apple ///, Franklin, Basis 108, and Bell and Howell computers. For most, installation involves merely inserting the pen card into slot 7. If slot 7 is not used or for some of the computers, a simple jumper wire (supplied) must be installed. Complete instructions make this a simple operation.

PENTRAK 2.0

The operating system for the Gibson Light Pen is the PENTRAK driver. This machine language program allows the user to interface with the pen from simple Applesoft statements. Additionally, the driver supplies some commands (using the & hook) to simplify working with Apple HIRES graphics. Here are some of the 48 ampersand commands in PENTRAK 2.0:

```
&TP   -- display primary text page
&TS   -- display secondary text page
&LP   -- display LORES page one
&LS   -- display LORES page two
&HP   -- display HIRES page one
&HS   -- display HIRES page two
```

These six commands are like doing the various POKEs which toggle the display softswitches. They are similar to the Applesoft HGR and HGR2 commands except that the HIRES image is not erased with &HP or &HS as it is with the HGR commands. Other commands are used to indicate on which HIRES page to work, regardless of the page displayed:

```
&DHP(S)  -- draw on HIRES page one (two)
&CHP(S)  -- clear HIRES page one (two)
```

Some commands are strictly pen commands:

&TRACK -- places a HIRES cursor on the screen and follows (tracks) the pen

&PEN -- allows the pen to "see" its position on other than HIRES pages (text screen menus)

&LINES -- adds horizontal and vertical dotted lines through the cursor to aid positioning of the pen

And some commands perform useful operations in HIRES graphics:

&NEG -- inverses the HIRES image (colors become complimentary)

&DOTS -- XORs HIRES dots onto the HIRES image to add a grid

&FRAME -- inserts a "window" onto a HIRES image and saves the overwritten image to be restored when the window is removed

&WRITE -- adds HIRES text to the HIRES image

The commands can be used in immediate mode (from the keyboard) but are most effective when used in combination and from a controlling Applesoft program.

APPLICATIONS PROGRAMS

Booting the master disk presents a text page menu of the applications programs. This menu is fast appearing and does not erase the current HIRES image. Only some of the applications erase the picture; you are warned of this and can abort. There is a DOS speedup routine but the disk FREE SPACE patch that was on the preliminary software disk is not installed on the final software disk. The only applications on the master disk (which is full) are those that can be accessed from the main menu: SKETCH, BOXES, PRINTER, TEXT, FONT EDITOR, GRID DRAW, GEOMED II, ANIMATOR, PATTERN EDITOR, PENPAINTER, and MULTIDRAW. The pen is used to select an application by "touching" a light button next to that application. Once the pen "sees" your selection, you can then abort the selection or continue. The abort option is useful because I discovered that if the pen is held near the bottom of a button, the wrong application can be selected by the program. This error is avoided by placing the pen in the center of the button. A calibration mode is available but it only calibrates the pen position in the horizontal, and as mentioned earlier, I had to also set the vertical calibration. When the menu program is LISTed as stated in the manual, you will discover a vertical offset parameter which can be changed. Each application will return to this menu when exited and since, for the most part, your image is left intact, the applications are tied together and make an integrated set of graphics tools.

The only program that is not part of the graphics tools is ANIMATOR which is mostly a demonstration program that creates animation using the pen. The animation is simple but the manual shows how to use the animated images in your own programs. The animation is not as flexible as that of GRAPHICMASTER from TidBit Software (reviewed in Peelings II, V5N1) but it does offer animation to those who wish to explore it. The PRINTER option is for use with those printer interface cards having built-in graphics capabilities (Grappler, Spies Super-MX, PKASO, etc.). Printouts can be regular or large, normal or inverse, and upright or rotated. This option allows the user lacking more powerful printer dump software to get hardcopies of HIRES images. If your card doesn't support graphics dumps, then you will need the more powerful software (see the latest Peelings index for those programs reviewed by Peelings). MULTIDRAW also has a single printer dump option which you must add by following the steps outlined in the manual.

Most applications have a FILER for CATALOGing, loading, and saving of images from any drive, as well as the negating or erasing of the image. Most of the programs use the same FILER although some, like PENPAINTER and MULTIDRAW have their own individualized FILERs. Unlike the preliminary software, most of the current applications operate in the same manner; where there are differences it is for good reasons. Now a few words about the other applications (MULTIDRAW will be discussed in detail in the next section). Freehand drawing in any of the HIRES colors is done with SKETCH. A "mirror" option can be centered anywhere on the screen to exactly mirror horizontally, vertically, or both, any image which you draw, to create beautiful, symmetrical objects easily. In GEOMED II, drawing geometric shapes is as easy as pointing out the center or one corner, and stretching the shape until it is correct. Using the "rubberbanding" mode of drawing, you can draw lines, or use the built-in shapes of rectangles, parallelograms, triangles, and circles. With all the power that is evident in PENTRAK, the rubberbanding circles are disappointing. They are created by first using a rubberbanding octagon which moves extremely slow-

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ly, and then the final circle is drawn, again slowly. Better rubberbanding circles are available elsewhere but the overall capability of the Gibson Pen far outweighs this disappointment. A grid of DOTS can be toggled on/off to aid in drawing but are not saved as part of the HIRES image. To utilize the grid more effectively, GRID DRAW sets the end points of lines at the positions of the DOTS (every eight pixels). This program is the only one to incorporate the SCREEN LIFTER function. I prefer to call this the "venetian blind" effect as that is what it looks like; you can "raise" the HIRES image, like raising a blind, to see the text page "underneath." This text page is the help screen. Some of the applications show a help page when first run and it can be displayed when needed by either pressing "H", "?", or "/", but accessing it by raising the image is more impressive. Unfortunately, there is a tradeoff; you have to give up being able to access the rightmost 12 pixels as part of your image.

HIRES text is added to your image with TEXT, using fonts created by FONT EDITOR or those from Apple Computer's DOS Tool Kit. You can set the left and right margins (using the pen, of course), and then point to where the text should start and begin typing. When the text reaches the right margin it will be wrapped to the left margin. Words are split but it is still nice to be able set the margins. Up to four additional fonts can be loaded and selected when required. The program will not allow the use of the lower case characters from DOS Tool Kit fonts so it is necessary to create a FONT (using the pen's FONT EDITOR) that contains a lower case character set and then switch between the two fonts. This brought out a problem with TEXT in that if the screen is white, you can not see the white cursor and so can not tell where your text will be entered until after you type the first letter. Letters can be erased with the pen by going into the erase mode and pointing at the letter to be erased. This works good unless the text is white on a black background, in which case the program leaves a white square in place of the letter erased. I found FONT EDITOR to be the easiest font creation program to use, not the most powerful mind you, just the easiest. Fonts can be loaded, edited, and saved, using nothing but the pen. Once the font you wish to edit is loaded, you point at the character and you will be shown that character in the zoomed-in mode where pixels are toggled on/off with the pen. There is no way to replicate characters as with other font editors but this program will suffice for most users and it comes with the pen. One problem: sometimes it was necessary to load a font twice before the program would enter the edit mode. With BOXES you create shadowed 3-D boxes (like on organizational charts) and then add centered text to the boxes. Simple to use but effective.

Most of the Gibson Light Pen System draws in black and white but this is not a limitation since you are drawing the outline of the image to which you can add colors (and colored patterns) with PENPAINTER. That is, if you want to, because after using MULTIDRAW you may not use color any more (I'll explain that below). PENPAINTER and the companion PATTERN EDITOR were discussed extensively in the first article so I'll just hit the highlights here. Figure 1 shows the PENPAINTER menu and the supplied palette.

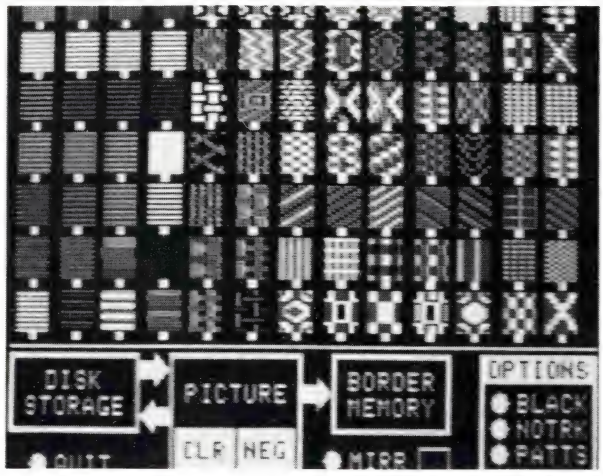

Figure 1

The boxes with arrows are what Gibson Labs calls the "INFO-FLOW" diagram and it depicts just that; which way and to where the information (HIRES image) goes. By pointing to the appropriate arrow, you select the operation you wish performed. Easy and very functional. You can draw in a manner similar to SKETCH including mirroring, and create the beginnings of your masterpiece. Alternatively, you can load a HIRES image from disk. Once the image is ready, you select the "BORDER MEMORY" function from the menu. This "locates" the boundaries on your image and allows refilling in any area. An unfortunate drawback to this is that it widens most lines and destroys the details of text and fine drawings. The image can be edited with the zoom mode of MULTI-DRAW but the colors will be difficult to get correct. When BORDER MEMORY is completed, point the pen to the pattern you want to use and let it register. Your image is then displayed and pointing to the area to paint results in the selected pattern totally filling in that area. Point the pen to the next area to repeat with the same pattern or you can display the patterns again and make another choice. Alternate palettes can be loaded at any time. Continue until you have painted your masterpiece. Superbly simple and yet so incredibly powerful that anyone will be able to create intricate and beautiful works of art. Painting with with patterns, not just solid colors, and being able to refill until it looks right will make even the simplest appearing image impressive.

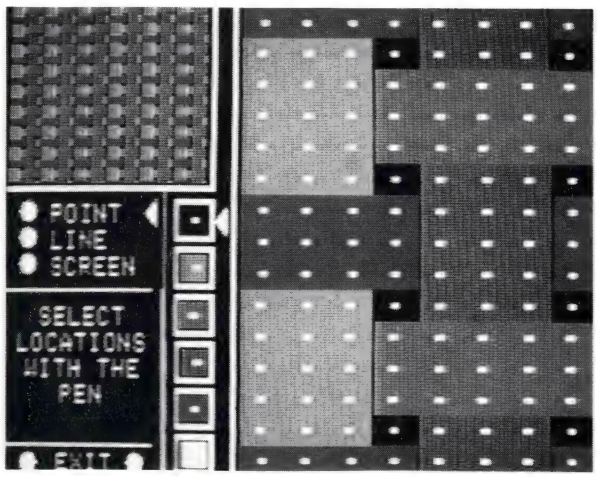

Figure 2

Patterns can be created and edited using PATTERN EDITOR (figure 2). On the right is where you work by turning on individual pixels (the white dots). This is a zoomed-in mode but in the upper lefthand corner of the same screen is a normal-sized representation of your pattern as it will be painted by PENPAINTER. Colors can be selected and you can edit by dot, line, or screen. From the PATTERN EDITOR INFO-FLOW menu (not shown) you can save or load patterns, and position the edited pattern on the palette. Simple to use but powerful.

MULTIDRAW

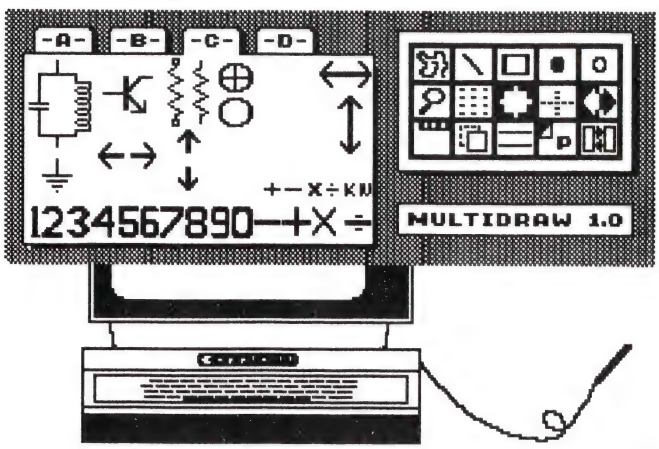

Figure 3

The cornerstone of the "final software" that Steve Gibson wanted the users of his light pen to have is MULTIDRAW (figure 3). On the left is the "card deck," on the right is the menu, and at the bottom is one half of the current HIRES image. Menu items are selected with the pen; some are toggle switches and some have a flashing border when activated. Many modes are used in the other applications programs, but their inclusion here makes MULTIDRAW almost a stand-alone program. The spacebar is used as a toggle for full screen image, or menu and half image, and you can choose which half (top, middle, or bottom) of the image you wish to work on. The split screen mode is most useful when utilizing images from the card deck.

The IJKM cursor move keys work in all modes, normal or zoom, to move the cursor one pixel. Pressing the "Z" or "?" keys will zoom into the area pointed at and present a 40 by 24 representation of the image. If you are drawing rectangles, you can enter the zoom mode and position the rectangle but more precisely. In fact, you can enter zoom at any time without disturbing the first point and continue your work. When the pixel zoom mode is active, editing while in zoom mode is done by toggling pixels on/off. If you need to get to a part of the image not visible while in zoom mode, you could exit zoom, move the pen to that area, and reenter zoom. But with MULTIDRAW this is unnecessary because while in zoom, you can enter a mode that slews the image. You will actually "drag" the image with the pen. By going into and out of this slewing mode, you can reach any portion of the HIRES image. The SHIFT key on Apple II's with the SHIFT key modification, paddle buttons, //e open apple key, or the spacebar will enable this function but I had a problem getting the slewing to work correctly when using the paddle buttons; the screen began flashing and would not stop until the spacebar was pressed. This may have been due to the Videx Enhancer II whose SHIFT keys will not work for slewing.

Three things make MULTIDRAW so outstanding, two of which work together. One is the card deck concept and the second, the move function to move shapes from the card deck to your image. The third is the fact that MULTIDRAW is totally a monochrome drawing system which effectively doubles the horizontal resolution of the Apple's HIRES graphics. Since colors are eliminated, the images drawn will appear more detailed than with drawing programs that use color. This ability to create more complex images is best used on high resolution, monochrome monitors as a black and white TV will not do justice to the images. Note that any image created may have colored lines when viewed on a color monitor or TV. The purpose of the card deck is to store a library of shapes on disk as separate files, four cards to a file. Pointing the pen to the tabs at the top of the cards will place that card on top of the deck where the shapes on it can be moved to your HIRES image. Figure three shows one of the cards from the sample deck. You can "lift" an exact duplicate of a shape from the deck and by moving the pen to your image, place the duplicate anywhere you like. The IJKM keys can be used for precise positioning and you can enter zoom mode if you like. This function is a two way street: you can transfer shapes from an existing HIRES image to the card deck in the same manner. Doing this will create a library of shapes for use

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in creating other HIRES images. You can also draw on the cards just as on the HIRES image itself. All modes on the menu are active on the cards although I found it better to use the entire HIRES image as a scratchpad to create shapes and then transfer them to the cards. The move function has an alternative mode of operation: it can be used to adjust the position of a shape by outlining the area and then using the IJKM keys to reposition that area. A nice editing feature is that images can be "stretched" or "shortened" by the move function.

SUMMARY

The Gibson Light Pen System is an outstanding product for the Apple II user who wishes to create HIRES graphics but with more ease and with more flexibility than ever before. The MULTIDRAW program is truly the next step in Apple programming and goes far beyond any other program currently available for the Apple; the concepts used in MULTIDRAW surpass all previous efforts. Error trapping in all the applications programs is good, but there are some problems in MULTIDRAW that will need fixing in later versions. Because MULTIDRAW is controlled by an Applesoft BASIC program, there are memory limitations that can become serious as you continue to work with it. Most OUT OF MEMORY errors caused by string variable usage are trapped out but I have succeeded in getting one too many OUT OF MEMORY errors and have ran out of room for even error trapping. This caused a crash to Applesoft, and my picture was overlayed with the error frame and ruined. One can hope that future versions will be entirely assembly language and avoid the memory limitations (and maybe also run on 48K Apples for those who haven't yet bought a 16K card). A serious error and one that can occur more easily is when you mistakenly attempt to load a normal HIRES image from disk as a card deck. On my Apple, the program crashed to a LORES page, turned on my MICROMODEM II, disabled RESET so that I had to turn the Apple off, and I lost my masterpiece. Normally I don't like programs to add prefixes or suffixes to filenames but I think that it is appropriate for a "CARDS." to be added to all card I/O operations. In fact, I would have added this to MULTIDRAW myself but was concerned about the memory limitations. One thing I did add was a ",D1" to the string BL$ in MULTIDRAW. Without this, attempting to erase the cards when the data drive is configured for drive two, will cause a FILE NOT FOUND error as the program tries to load the blank cards file from the data disk. For the most part, the errors in MULTIDRAW only detract slightly from the power available.

It has taken a long time from March 1982 to November 1983, a somewhat troubled time, for the final software to be released, but the arrival of "the final software" and MULTIDRAW makes the Gibson Light Pen System the number one graphics system for the Apple II. (NOTE: only time will tell whether the Gibson Pen stays #1. See the review of the Magellan Light Pen in this issue.)□

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INTRODUCTION

In *Peelings II,* V3N5 (1982), we reviewed a program from Data Transforms called GRAPHTRIX (rated B). Its one major attraction was the ability to add Hi-Res images to your documents written with the Apple Writer 1.0 text editor. Now we have FONTRIX, a Hi-Res utility package that will provide the user with three basic capabilities: fonts, drawing, and printing. There are three programs to handle these tasks: FONT EDITOR, GRAPHIC WRITER, and GRAPHICS DUMP. An extension of the normal Apple Hi-Res screen is made to allow creation, editing, and printing of Hi-Res images that can be up to 16 times larger than normal Hi-Res images. Several graphics input devices and printers are supported. The program disk is unlocked, and many of the programs are written in Applesoft BASIC with machine language modules.

As stated in the manual, nothing is warranted (let the buyer beware). This policy is totally inappropriate to the power offered in FONTRIX and is surprising in a company that has been around as long as Data Transforms.

DOCUMENTATION

The manual is an excellent 130-page, 5 1/2 X 8 1/2-inch, three-ring binder affair. It includes tutorials, pictures, a table of contents, an index, and several tables and charts to help you use the programs. A few spelling errors were noted in the current release, but they do not detract from the reading of the text. No errors in operation were discovered. The only thing this reviewer found to be distracting was the constant reference to the disk-access chapter (chapter 5). I would have preferred to see this as chapter 1 and to have gotten it out of the way early in the reading. This is just personal preference and did not hamper my use of the manual.

OPERATION

The first time you boot a copy of the master disk, you will be shown a brief introduction and demonstration program about FONTRIX. Then you will configure the disk to your specific system. All subsequent boots of the disk will take you straight to the main menu. Reconfiguring or rerunning the intro and demo can be accomplished from this menu. To configure the disk, you enter the following parameters:

1. Keyboard type (II+, //e, ///, or Enhancer)
2. Lowercase display
3. Graphics input device (keyboard, paddles, joystick, mouse, trackball, KoalaPad, or tablet)
4. Printer interface card
5. Printer type

The following card and printer manufacturers are supported:

CARDS - - Apple, ALS, CCS, Epson, Mountain Hardware, Microtek, Okidata, Orange Micro, Practical Peripherals, Prometheus, SSM, Tymac

PRINTERS - Apple, Anadex, Centronics, Epson, Itoh, MPI, NEC, Okidata, and IDS

Once you have selected the manufacturer, you then select the card or printer model. Multi-disk-drive systems are supported, although they are not configurable. The disk-access routines provide all the standard disk functions including free space. For some reason, it was decided to use hexadecimal sector counts in the disk catalog instead of the normal decimal numbers. This can take some getting used to. A "wildcard" search feature is available whenever you need to input a filename. The search can either match any string or match any character in a specific position. One minor complaint is the use of the "*" wildcard character instead of the more-or-less standard "=" character (FID). All the programs are menu-

driven, but none are single keystroke. Operation of the various routines would be enhanced by eliminating the necessity of using the RETURN key for single-character responses.

The FONT EDITOR program is a simple-to-use editor for creating new fonts or editing existing FONTRIX fonts (not compatible with fonts created by other editors). Matrix or cell size (up to 32 X 32 pixels for each character) and whether or not the character set is proportional is defined for each font created. When an existing font is loaded, its size and whether it is proportional is displayed. Proportional fonts will use only the space required for the character when used in a line of text instead of using the entire space of the cell, thus an "i" will take less space than a "W" if it is proportional.

Actual editing is done in an expanded cell with the as-edited character appearing in its specified size next to this cell. Thus changes in a character are immediately visible. The entire font set can be viewed at any time. You are not limited to a one-to-one correspondence with the characters on the keyboard; any character can become any character or symbol you create. Characters can be copied, or overlayed into other character positions. They can also be moved around within the editing cell to allow for positional adjustment. FONT EDITOR is required if you wish to create your own fonts for use with the GRAPHIC WRITER program, although 11 are supplied on the program disk. The only deficiency in the program is that it is very slow operating.

The GRAPHIC WRITER program is where all the power of FONTRIX resides. With this easy-to-use program you can add text in any of the supplied or created fonts to your Hi-Res pictures. Text can be proportional, if the font is so created, or you can set the spacing to be used between each character (which can be changed at any time). The cursor can be moved by character width or by pixel. The only problem occurs when trying to replace an entered character with another; the replacement is not always complete, in that some portions of the original character may be left visible.

While in the graphics portion of the program, many control keys are used to select the various options. The screen or a window can be erased in any of 31 colors; text can be inserted, replaced, or overlayed on existing text; or you can do basic drawing by moving the cursor around with the I,J,K,M keys or other graphics input device (joystick, tablet, etc.). This basic drawing mode is not very powerful, and you will probably find some other graphics utility more useful to create most of your Hi-Res pictures from scratch.

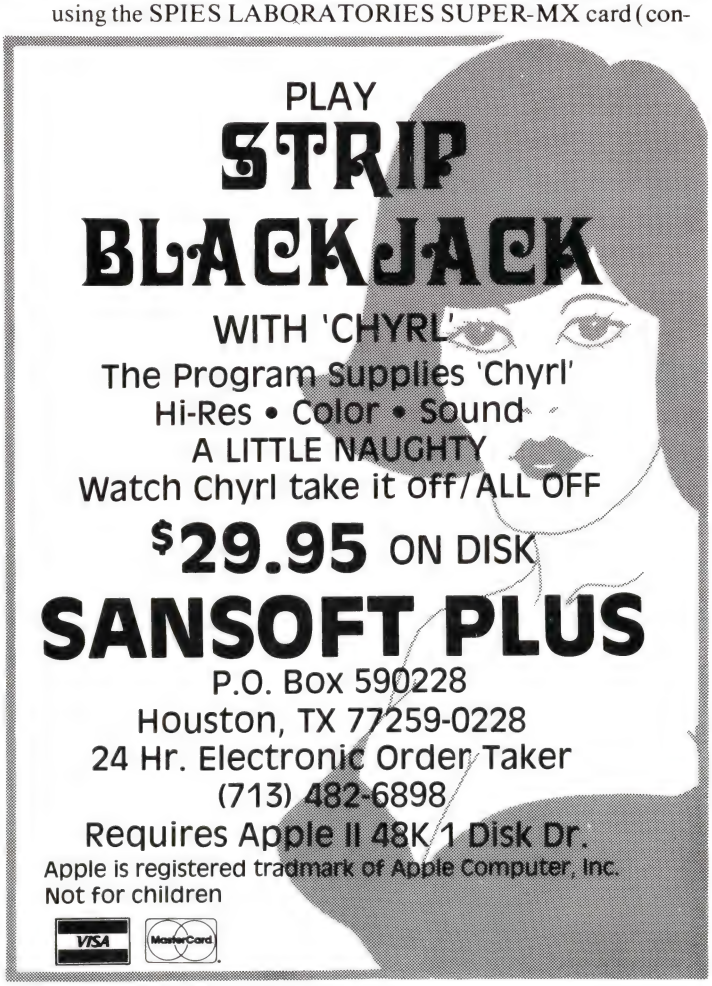
The real power of GRAPHIC WRITER comes into play when you decide to create a GRAFFILE. This disk file can contain up to 16 individual Hi-Res screens that can be edited or printed using the GRAPHICS DUMP routine. Some explanation is in order. To a GRAFFILE, a normal Hi-Res screen is 5 disk sectors horizontal by 6 sectors vertical for a total of 30 disk sectors (versus the standard 34). You can create a GRAFFILE as big as 480 sectors. Obviously, such an image cannot be seen all at once on the Apple's screen, so what you actually see is just 30 sectors from the larger image. By moving the cursor to the margins (top, bottom, left, or right), you will see the image scroll much like with a word processor as the next horizontal or vertical sector is loaded in and displayed. In this manner, you can create, edit, or add text to any size image area that you need. Normal Hi-Res binary files can be loaded into a GRAFFILE by selecting the position where you wish to have the new image appear and vice versa; you can save as a normal file any area of the GRAFFILE.

The tremendous possibilities of GRAFFILEs becomes readily apparent once you actually create one. No longer will you be limited to the Apple's 280 by 192 resolution; you can use this area as just a window into a much larger image. But there is a catch, which is discussed in the next paragraph. Overall, this new type of Hi-Res image will be very useful to many users who need better resolution or single, large graphics. Imagine a game using this technique; all that is required is to speed up the disk access to a point where the delay to load the next section is minimal.

The GRAPHICS DUMP program is used to print out hardcopies of both normal Hi-Res images and GRAFFILEs. The print options include most of the standard parameters as indicated:

PRINT MODE:	**INVERSE/NORMAL**
PAPER WIDTH:	**8.5 or 14 inch**
MAGNIFICATION:	**1 to 255**
JUSTIFICATION:	**LEFT, CENTER, or RIGHT**
LEFT MARGIN OFFSET:	**0 to 64,000 dots**
VERTICAL CENTERING:	**YES or NO**

Most printers won't print a full screen at magnifications greater than three. During tests, the vertical centering was off by about six lines at the 3X magnification. The aspect ratio was noticeably off (stretched vertically) on Epson printouts using the SPIES LABORATORIES SUPER-MX card (con-



figured as a GRAPPLER interface card). The program has no rotation option, and you cannot specify the horizontal and vertical magnifications separately.

For all these reasons, you will probably find one of the straight graphics dump programs useful (see the chart in V4N4, 1983, pages 44 to 45). However, to print GRAFFILEs it will be necessary to use this program, and here the program works acceptably with only the following catch: You can create GRAFFILEs that are too big to print. At a magnification of 1X, only 17 sectors horizontally (a little over three normal Hi-Res screens) will fit on 8 1/2-inch paper. Vertically there is no limitation on continuous-feed paper, but there is no pause to add a second sheet if using single sheets. If rotation of GRAFFILE printouts were possible, then pictures that were too big horizontally but within certain limitations vertically could be printed down the paper. Even with the size restriction, GRAFFILE printouts at a magnification of 1X can produce incredibly detailed, yet very large pictures on a high quality dot-matrix printer.

SUMMARY

FONTRIX is definitely a package to investigate if you need to create specialized text for either printing or display. The capability to print larger-than-normal Hi-Res images far outweighs any limitations of the software, and indeed, it is the only program for the Apple II that has this capability. If Data Transforms would rethink their warranty policies they would have a complete winner.

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Reviewer's Note: Data Transforms has released the first two "FONTPAK Character Set Disks" for use with FONTRIX. For $20.00 each, you can get 10 complete sets of different fonts on an unprotected disk. The following font titles are available:

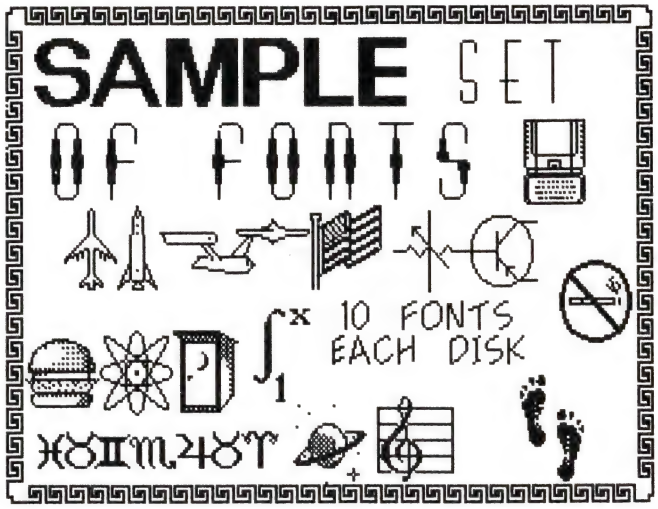
Volume 1: Headline & Decorative Sets

Astrology	Banner	Book
Borders	Chapter	Diffusion
Folio Bold	Fontrix	Huxley Vertical
Kudzu		

Volume 2: Art & Technical Applications

Electronics	Floor Plan	Flow Chart
Geometrics	Greek Extra	Icons
Leroy	Mathematics	Music
RAM Symbols		

Some samples are shown in the figure. This figure was created totally from fonts contained on both disks using the Graphic Writer portion of FONTRIX.



Each package includes charts of keyboard conversions for each font. The charts and the plastic disk holder are sized and punched to fit the FONTRIX binder. There are some incredibly nice and useful fonts included on these two disks. Some sets include only a few characters, typically only uppercase letters, while other sets have up to 94 different characters or designs. As you can see from the figure, some fonts are not just standard fonts but are actually designs which can be combined to form very intricate patterns. Some can be combined to write involved mathematical equations or music. The icon set has 94 individual images, any of which can be added to your graphics with the ease of pressing a key.

If you are a FONTRIX owner, or are contemplating purchasing FONTRIX, owning these FONTPAKs will save you considerable time by eliminating the need to create your own similar fonts. At $2.00 per font the price might seem high to some, but the usefulness of these fonts may outweigh the price for many users. The only complaint I have is that each disk is only about half full; one could wish for a full disk for $20.00.

More volumes will be forthcoming from Data Transforms. They are willing to pay users for new fonts, so if you have a font you would like to see published, contact them for details. □

Air Nav Workshop

by Ken Winograd
Space-Time Associates
20-39 Country Club Drive
Manchester, NH 03102
603-625-1094

$40.00

Rating: AA

Reviewed by Michael Weasner

INTRODUCTION

Air Nav Workshop, or ANW as it is called, is an update of Air Navigation Trainer (ANT; reviewed in *Peelings II*, V3N9, 1982, rated A+). In some respects it is an entirely new program, but the purpose remains the same: to be a learning/teaching aid for aviation enthusiasts. Its forte is radio navigation, and just like its predecessor, ANW is very well done, and in many areas it has been improved.

The software is supplied on one protected disk with a back-up available for 6 dollars. Legitimate flight schools may order additional copies of the disk or manual for $6.00 each by sending a request on their letterhead to Space-Time Associates. Owners of the earlier Air Navigation Trainer may update to ANW by returning their ANT disk and paying $20.00. These policies are reasonable.

DOCUMENTATION

The 8 1/2 X 5 1/2-inch manual contains 55 pages of program explanations, some minimal instruction on VOR (Very high frequency Omnidirectional Range) and NDB (Non-Directional radio Beacon) navigation, and a Table of Contents. The manual is well written, and any level of student pilot should be able to understand the instructions given. The only drawback to the manual is that it is printed with a dot-matrix printer; the text is readable, but a typeset manual would have looked nicer (but would have raised the cost). The manual includes some worthwhile information published by the Federal Aviation Administration.

MAIN MENU

When the program disk is booted, you will see some fine Hi-Res graphics displays. Unfortunately, in this reviewer's opinion, there are too many, and it takes too long to get past the Hi-Res title pages to the main menu. And now with the only flaw in ANW out of the way, we can concentrate on the good points. There are four options in ANW:

1. ADF/NDB TRAINING AID
2. VOR/VOR TRAINING AID
3. NAVIGATION SIMULATION
4. AREA PERSONALIZATION

The first two are programs which allow the student to become familiar with the instrument displays and with the effects of aircraft position/heading relative to the station and

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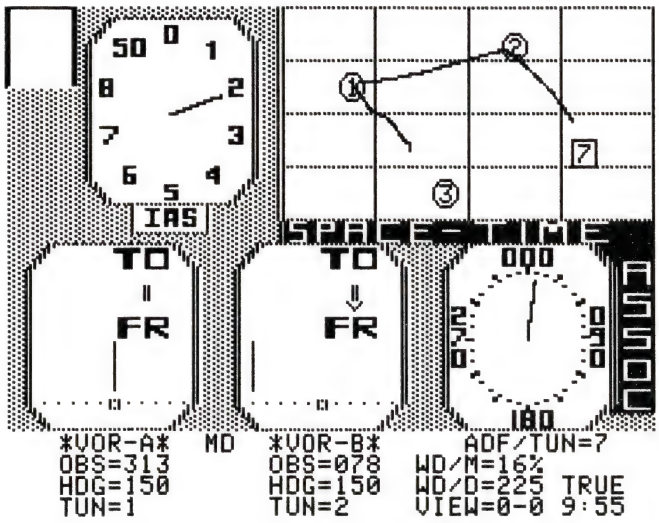
changing magnetic variation. Both programs can be used in conjunction with the short courses provided in the manual. The third option is the main program and will be discussed below. The fourth option is the most important improvement of ANW over ANT. With it you can design your own world of starting and landing points, and VOR/NDBs. These can be visually placed, or you can specify coordinates or range/bearings. The station identifier (three letter ID), the reception ranges for the identifier, and usable information can be specified separately for each VOR or NDB. Magnetic variation can be set. Areas can be saved, loaded, and edited. On the program disk is the area used in ANT (different from the ANW area), but all your areas will be saved on a data disk. One- or two-drive systems are supported. I found it extremely easy to design an area, and anyone should be able to design one from scratch or from an existing enroute or approach chart.

The NAVIGATION SIMULATION is essentially the same as in ANT, and the appropriate portions of the earlier review are quoted here for the benefit of those readers not having access to V3N9 (please refer to the figure as you read).



The instruments are across the bottom with the "map" at the top right. The locations of the VORs and NDBs are fixed and indicated by the various symbols with numbers in them. Setting headings and courses requires only pressing the "H" or "O" (for OBS or Omni Bearing Selector) and pressing the Arrow keys to start the reading increasing/decreasing. To stop merely press RETURN. The settings can be changed at three rates, and the rates can be changed at any time. There is even a "standard rate turn" rate that is useful for timed turns. Tuning stations is not possible while on the ground (due to line-of-sight limitations), so after making all the necessary course settings on one or both VORs, you must take off. Pressing a number key by itself opens the barn door and starts the aircraft taxiing; then the aircraft turns onto a runway and accelerates. That is the last time you will see the little aircraft until you land when the sequence is reversed.

The selected airspeed shows on the airspeed indicator at the top left and is calibrated in hundreds of miles per hour for the numbers 1 through 8 (100 to 800). Selecting 9 speeds up the simulation by flying at 5000 MPH. Just as in a real aircraft, once airborne you must Tune, Identify, and Monitor (TIM) a VOR station (no monitoring capability exists). Pressing the "T" key steps through the two VORs and the ADF each time it is pressed. When you have the right receiver selected, input a station number (frequency) by pressing the appropriate number key. You will then hear its Morse Code once. This is a nice touch to get the new pilot into the habit of Identifying a station.

From then on, the functioning of the simulator is just like a real aircraft navigating by radio. The Course Indicator (CI) is fully functional and correctly displayed. The TO/FROM indicates whether the course selected will take you to or from the station. Station passage is indicated by the CI jumping back and forth and finally the TO/FR indication switching. The ADF is also a perfect simulation of the real thing and will indicate relative bearings to the selected NDB. In the lower right-hand corner of the display is the wind information, map quadrant/sector parameters, and an elapsed timer that is useful during training to determine if you are getting more efficient at using radio navigation.

When winds are affecting your flight path you must fly "in a crab" to correct for the wind trying to blow you off course. I was curious to see if the correction the program was having me fly was accurate, so I got out my trusty Jeppesen Professional CR Flight Computer and did some calculations. I was astounded to discover the program was 100% correct. Well done, Space-Time Associates. The winds will vary according to the turbulence factor and will make your learning more realistic. Practicing holding patterns in a strong wind will quickly show the effect of the wind on your flight path, and studying the ground track will point out the need for crabbing into the wind.

ANW has a mode for flying on instruments which disables the display of your flight path. Unlike ANT, options to save and/or print a display, including the flight path, have been included in ANW. It was used to generate the above figure which includes a flight path from my first flight with ANW (course corrections are due to my changing the wind parameters). When dumping the display to a graphics printer, the option is available to define an "initialization string" which will place your printer in the desired mode. This means that the capability to dump the screen should exist for nearly every printer.

SUMMARY

Air Nav Workshop is really a fine program. Error trapping, user interfacing, and uniformity of operations are well designed. The addition of the personal customization of areas enhances the long-term usability of the program and also means that flight schools can design areas that are exactly like their local flying areas. A student can practice radio navigation before actually flying. The summary from the earlier review says it all:.PLS

Air Nav Workshop is a useful teaching tool for flight instructors and student pilots. It will also give the experienced pilot some good training to brush up on radio navigation. When I was first learning to fly, the instructors always used a blackboard or paper to discuss VOR navigation. At times it was difficult to visualize what was happening. During Air Force pilot training, large wood and plastic displays are used to show the class what instrument indications will be present under various conditions. Air Nav Workshop does a very effective job replacing both these traditional ways of teaching. Learning to fly on instruments is challenging, and flying on instruments well is even more challenging. Learning how to navigate your airplane around the sky using the nationwide network of VORs is just one small part of instrument and even visual flying. Unlike other microcomputer simulators, what you learn from Air Nav Workshop can be directly applied to real aircraft. Air Nav Workshop is an excellent learning aid, and using it is easy. Although it is not a game, it is also fun to use. It is highly recommended for student pilots who are struggling with the concepts of radio navigation.□

Life With My Printer

Printer Introduction

We asked several of our authors to send us a short article about life with their printers. We were interested in their general impressions on interfacing and reliability as well as true speed. For the speed test, we believe that most users want to know how fast a printer will print standard text. While it is true that under some special conditions, with special formatting and character fonts, a printer can achieve a very high burst speed, under most conditions the user wants to know how fast he can crank out his 10-page dissertation on the History and Development of the Boomerang. We have implemented the Peelings' standard for printing The Gettysburg Address, which has exactly 1300 characters and blanks. The time to print this text from key strike to last character (not to the form feed) is the "Gettysburg Standard". Using this kind of text, we found that most printers perform somewhere near half their advertised speeds.

Here, then, are the authors' impressions.

Diablo 1640 & 630

F. M. Remley

My first printer was an IDS 440G--the Paper Tiger. When I bought it in early 1980, it was the hottest printer on the market. In fact, it required many telephone calls to locate one after the big decision to buy was made. Finally, a dealer in Chicago agreed to send me his demonstrator, and it went into service immediately upon delivery by the UPS truck. It still works well, although I recently sold it to a young man just starting with his computing career.

Why did I sell it? Well, as many readers probably know, the Paper tiger has a 7-wire print head. This means no descending tails on p, q, y, or j. The lower-case type is, by any standards, quite ugly! The printer itself, in spite of some quirks, is a good unit. The drive belt for the print head requires occasional tightening and the ribbons are expensive. Aside from that, there are no problems. But, given that both my wife and I are heavy users of WordStar in our work, we decided that we must have a daisy wheel printer. WordStar is a program designed to function best with a daisy wheel printer; most of its print formatting commands are based on the printer designs pioneered by Diablo and, a little later, by Qume. When an opportunity arose to purchase a brand new Diablo 1640 at a good price, we jumped at it. The Paper Tiger sat on the sidelines for a few months; then we decided that the Diablo would do anything that we reasonably could require, and we sold the Tiger. The turning point was trying Zoom Graphics for the first time. Although somewhat slow, the Diablo can print a very satisfactory Hi-Res screen dump, and this sealed the doom of the IDS in our household.

I have recently acquired a Diablo 630-API for use at my office. Most of the following comments apply to both Diablo models but differences should be noted. The 1640 is built like a tank; the basic structure of the printing mechanism is a well machined aluminum casting. In the case of the 630, stamped metal structural parts are used in most places. The electronics of the two machines are functionally almost identical. But the 1640 uses TTL logic- -and quite a bit of it at that- -while the 630 uses low-power and CMOS logic. Hence, the 1640 has a cooling fan but the 630 has none. The 1640 has a metal case, the 630 a plastic case. Both are heavy, large machines. The 1640 weighs about 40 pounds and the 630 about 25. Both require proper printer stands to function well and to handle tractor-fed paper easily. The 1640 is faster! I'll discuss performance in a minute, but should note that the difference is not significant for most purposes and is due to the fact that the 630 will accept both metal and plastic daisy wheels while the 1640 accepts only plastic. This apparently compromises the 630 daisy wheel drive design somewhat.

The classic daisy wheel printer derives from the days of printing keyboard terminals, descendents of the Teletype. Most often they were connected to a mainframe computer through a modem, and have traditionally been printers with RS-232 serial interface requirements. The Diablo 1640 is a serial RO (receive only) printer and has an RS-232 interface. My Diablo 630-API is also an RO printer but has a 50-pin connector that permits Centronics parallel interfacing, IEEE 422 interfacing and, of course, RS-232 interfacing.

I operate both of my Diablos in the serial mode at 1200 baud. For the 1640 I use the CCS 7710A serial interface card purchased in 1980 for the Paper Tiger. It works perfectly, although it proved to be easier to use the factory-supplied Diablo printer cable if I changed (by minor reworking of the board to exchange pins 3 and 2) the electrical specification of the board from a DCE to a DTE. Most computer users who have experience in using the very poorly devised RS-232 standard have encountered the same problem; it corresponds to the "null-modem" cable solution so often applied to terminal interfacing. Most printers require a "handshaking" connection to the computer driving them. Handshaking solves the problem of the computer sending characters to the printer faster than the mechanism can put ink to paper. Handshaking can be done in either hardware or software. Hardware handshaking is, in my opinion, the only way to go for serial printers. Both WordStar and Diablo make provisions for software handshaking using the ETX/ACK and XON/XOFF protocols. But software handshaking is nothing but trouble and was designed primarily for mainframe/modem interconnection over telephone lines. Avoid it if you can. Most, but not all, contemporary serial printers accommodate hardware handshaking, using a three-wire interface cable. Most serial cards accommodate it also, but the old Apple High Speed Serial Card did not; avoid that card if you can.

I drive the Diablo 630 using the Apple Super Serial Card, again at 1200 baud. The only thing to observe is that the SS Card offers switch-selected emulation of the older Apple Communications Card. Use this emulation; the Diablo and WordStar both expect that Apples are interfaced using the Communications Card with the P8A ROM. Uncovering this fact cost me a couple of days of frustration. Finally, a fine person at MicroPro offered the answer. No one I spoke to at Diablo could identify the problem.

Most of the other attributes of these printers can be summarized quickly. Paper width can be zero to 15 inches, either tractor fed or friction fed in rolls or by single sheets. Both forms tractors and sheet feeding mechanisms are available. I prefer the Rutishauser tractor to the equivalent Diablo tractor; it permits easy single-sheet feeding even when mounted on the printer. There is a wide selection of daisy wheels of many type styles and pitches. Pitch is software selectable in increments of 1/120th of an inch; line spacing in increments of 1/48th of an inch. Tabs, margins at top and left side, page length and many other attributes may be set in software. Underlining, double striking, and bold-face printing are software controlled. Both printers perform an elaborate self-test when commanded to do so, checking ROM, RAM and printing mechanism. True printing speed is in the vicinity of 40 characters/second. Both Diablo models use powerful drive motors for the print carriage and for the paper drive. As a result, paper and print movements are very rapid and little time is lost in form-feeding and so on. This raises the average printing speed dramatically. In fact, my Diablo 1640 (rated at 45 char/sec.) prints a page of normal text only two seconds more slowly than the IDS 440 (rated at 94 char/sec.). Rapid paper and print head movement, coupled with bidirectional printing, are the reasons and are items often missing in the lower priced daisy wheel printers based on modified typewriter mechanisms.

Daisy wheel printers are not silent, but their tap-tap noise is preferable, for my ears, to the whine of a dot matrix printer. The Diablo 630 has a noise-reducing lid over the paper opening and both machines have generous quantities of sound absorbing material inside their cases.

Replacement parts, together with an interesting chronology of the evolution of the Diablo printer and a list of useful accessories, can be obtained from The Printer Works, 1961 Alpine Way, Hayward, CA 94545. This is an especially useful source, since Diablo mechanisms are serviced by Xerox service centers, and the usual charges tend to be excessive because they are based on modular replacement rather than repair. An alternate source of small parts and mechanical components is welcome.

The Epson MX-80

by Michael Weasner

My first printer was an Apple Silentype, but when the Epson MX-80 F/T became readily available, I wanted its good quality text and graphics printing, true descenders, and use of real paper (not the thermal, continuous-roll paper used by the Silentype). It was the best deal around in July 1981.

The MX-80 has the following software-selectable text modes:

Normal 10 char/inch 80 char/line
Compressed 17 char/inch 132 char/line
Expanded 5 char/inch 40 char/line
Expanded/Compressed 8 char/inch 66 char/line
Super-/Subscripts
Italics
Adjustable Line Heights
Two Boldface Modes (Emphasized and Double Strike)
True Underlining

Many modes can be mixed within the same line, and some can be combined (e.g., compressed subscripts printed at 12 lines/inch for very small printing). I wish Epson had allowed

for mode selection from a control panel, but Finger Print (formerly MXPLUS), from Dresselhaus Computer Products, provides this useful capability (see *Peelings II,* V3N8 and V4N8). Fonts are fixed as normal and italics. With the Spies Laboratories SUPER-MX Interface Card *(Peelings II,* V4N1), you can have several more fonts and much higher quality text in both pica (10 char/inch) and elite (12 char/inch).

Graphics dumps are very good, but after 2 and 1/2 years of use, horizontal lines (gaps) have appeared in all printouts and are noticeable when printing dark areas. I don't know whether this is due to printhead or gear wear, or some other cause. A reverse problem appears when printing lines of super-/subscripts: text is compacted vertically, making some lines difficult to read. The Graftrax-Plus ROMs allow dot-addressable graphics for very high quality charts or drawings, but generally, software is used to print a picture from one of the Apple's Hi-Res screens.

There is a control panel with ON LINE, Form Feed, and Line Feed buttons, and status lights. The printer buffers by line, so pressing the ON LINE button to take the printer offline will still get you that line of text. With some software, getting the printer offline is a challenge; you must wait for a blank line and hope you press ON LINE before the buffer fills. The FF and LF functions are auto-repeat. There is a "paper out" light and a bell which will sound when the sensor detects no paper. This function can be disabled from software (or a hardware switch inside the case). Since the printer stops on a "paper out" even though room exists on the current page, this function needs to be disabled when you are printing on single sheets or if you are near the end of your continuous-form paper supply. The paper can be manually moved forward and backward with the power on, but only infrequently and slowly because the gear mechanism does not disengage. With the tractor feed, you will lose the top 2 inches of the first piece of paper, so you will probably waste the first sheet. Ribbon cartridges are easy to replace and even to reload.

The only serious complaint I have about the MX-80 is that it is not easy to get at the various internal switches for changing certain defaults. I would use these often if they were more accessible. The tractor mechanism can easily be removed for general cleaning and for printing single sheets (not necessary, though), but to remove jammed mailing labels will involve a nearly complete disassembly of the printer. The printhead is reportedly easy to replace, but I haven't felt the need to do so. The power cord and cable do not interfere with the paper path, although it is close.

I haven't found any software that would not work with the MX-80, although there are a few protected software packages that have problems with the Spies SUPER-MX card. Never once have I been displeased with its performance, nor has it needed any maintenance. A very good product that is strongly supported by software and hardware developers.

SPECIFICATIONS:
Type: Epson MX-80 F/T (Graftrax-Plus)
Claimed speed: 80 characters/second (Epson modes)
Actual speeds: 49 cps (normal)--43 cps (compressed)
Paper width: 10" (9 1/2" perforated forms) maximum
1 1/2" perforated forms minimum
Size: 15.5 X 14.5 X 4.8 inches
Weight: 12.1 pounds□

The Nec 5510 Spinwriter

by Alan Shalette

When you pay over $3000 for a printer, it had better be good. It should be reliable and fast, work with any software, provide flexibility in fonts, forms, and formats, and be supported by ready availability of supplies and servicing. These were my own requirements when I went shopping for a letter-quality printer 3 years ago.

I'm happy I chose a Spinwriter; here's why.

My printer gets almost daily use--for as long as 6 to 8 hours straight. It has never failed to work and has never been serviced. Maintenance is limited to infrequent indulgences with a damp cloth and a vacuum cleaner. I use many types of continuous forms in addition to single-sheet stationery. The Spinwriter will handle any form up to 16 inches wide--including carbons. I chose both friction- and tractor-feed options for my machine, opting not to use a pin feed. Paper can be fed from the rear (top of the platten) or from below through a slot in my printer stand.

I keep 10 different standard-spaced font thimbles on hand and use both nylon and mylar ribbons. Additional proportionally spaced and standard font thimbles are also available. Thimbles are easily changed, taking about 10 seconds to do so. Printer thimbles are plastic, and for all the use I've given them, I've experienced only one failure--an underscore character broke. Paper, thimbles, and ribbons are readily available from a large number of mail-order firms.

A series of controls on the printer's front panel includes switches to: turn power on and off; set top of form; form feed; take the printer off-line (useful if a program doesn't have a pause feature, but information in the printer's buffer will be lost when it is brought back on-line); set 10- or 12-pitch (characters per inch); set line spacing for 6 or 8 lines per inch; turn "local" linefeeds on or off (supply linefeeds if a program doesn't); set page length in number of lines per page (up to 99); clear the buffer; and run a self-test.

Three additional front-panel switches are used to control communications interface functions. These include: full or half duplex, parity, and transmission speed. One more front-panel switch is used to reset the printer. This is needed to recover from a transmission error or if printing was stopped because one of the built-in sensors was tripped indicating: an out-of-paper condition (rear feed only); end-of-ribbon condition (mylar ribbons only); or that a cover is ajar. Remarkably, once the printer is reset, printing will continue without dropping a character unless the reset was caused by a transmission/program error.

Other (DIP) switches are located on an electronics board behind the printer's front panel. They have something to do with communications interfacing. My dealer set them before I

took the machine home- -I don't understand how to use them, and the manuals don't help. Further, the manuals say almost nothing about any of the front-panel switches noted above.

The manuals also fail to describe most of the Spinwriter's software-driven capabilities which include underscores, boldface, super- and subscripts, reverse printing, horizontal and vertical tabbing, pitch and line-spacing selection, proportional spacing, and probably some other features of which I'm not aware. Fortunately, the developers of several word processing packages I've used have implemented some of these features. I can also use the Zoom Grafix package to produce high-quality graphics, although at a considerably slower speed than with my dot-matrix printer.

Speaking about speed, the printer is rated at 55 characters per second (cps) at 12 characters per inch (maximum). It took 33 seconds to print The Gettysburg Address in 12 pitch and about 1 second more to print it in 10 pitch. These timings equate to about 39 cps.

One thing I have been unable to do is use Pie Writer to send embedded spacing controls to the Spinwriter. My every attempt has been frustrated- -no matter what the manual says. If anyone can help, let me know. My Spinwriter/communications card and software combinations have some other quirks, but I consider the Spinwriter a truly remarkable machine and well worth the price.

SPECIFICATIONS:
Type: NEC Spinwriter 5510
Claimed speed: 55 cps
Actual speed: 39 cps
Paper width: up to 16 inches
Size: 25 X 20 X 11
Weight: 50lbs.

The Epson FX-80

by John Martellaro

I have been living with an FX-80 for almost a year now, and like my old MX-80, it has been a real workhorse. I use it constantly for printing drafts, Source sessions, Hi-Res graphics dumps, and word processor evaluations. It has never skipped a beat and has never required servicing.

In addition to all the fine features of the MX-80, the FX-80 adds some extra refinements. It is about 50% faster, provides either a 2K buffer or a down-loadable character set, power-up control of paper roller, slightly better paper utilization, friction feed for single sheets, more accessible DIP switches, and a far better manual.

One of the things that really struck me was the excellence of the manual. It is spiral-wire bound and over 300 pages. It has everything you ever wanted to know about a printer, and a removable quick-reference card stitched into the back that summarizes all of the control-codes. I have seen printer manuals for printers costing several times as much that are sorry, indeed, compared to Epson's.

The printing options are too numerous to go into here in detail, so I'll just list a few.

10,12,16.5 char/inch
Italics
Underlining
Emphasized (bold) and double strike or both
Superscripts/subscripts (small char, not via half-line feed)
Reverse feed
Compressed and expanded print
Dot-addressable graphics
ASCII debug "trace" mode

It goes on and on. . . .

The first interface card I used was a Microtek Apple Dumpling parallel on loan. Right away, I discovered that it was incompatible with Pie Writer and took it back. Apparently, both Hayden and Microtek know about the problem, but I haven't pursued affixing blame. The interface card that I ended up buying was the standard Epson parallel card- -it works with everything. In my experience, I have had nothing but grief with fancy parallel cards like The Grappler and the Apple Dumpling. Maybe it's my karma, but things just never have gone smoothly for me using those kinds of cards, and I prefer the simple plain-Jane parallel cards. Recently, I moved the Epson parallel card to another Apple and replaced it with the Videx PSIO (parallel, serial, input, output) card. In parallel mode, configured properly with the configuration disk, the PSIO card works just fine. While I'm on that subject, I am impressed by the Videx PSIO card and its accompanying documentation. The manual actually teaches and informs. It is a good card and I recommend it.

Some of the things I like about the FX-80 over the MX-80 are: The on-/off-line button is always active. I can always interrupt a printing session at any point. The DIP switches are in a convenient compartment under a pseudo-cooling vent. The paper feed is better at preventing self-feed. The paper feed knob can be used when the power is on.

The only complaints I have about the FX-80 are: Without a special adapter, one cannot move the pin feeds closer than 9.5 inches. This prevents using mailing labels. However, I use sheet (friction feed) much more often than mailing labels, so it's no problem (the adapter is not overly expensive). And I miss having a manual "set top-of-form" switch. Setting TOF is only done at power up or through software.

The FX-80 printed The Gettysburg Address in 17.9 seconds in Pica and 20.7 in Elite mode. That corresponds to 72 characters per second (cps) maximum.

I have not seen and used every matrix printer around, but I have seen and used a variety of printers owned by friends and by Peelings. The Epson FX-80 impresses me the most.

SPECIFICATIONS:
Type: EPSON FX-80
Claimed speed: 160 cps
Actual speed: 72 cps
Paper width: 9.5 to 10 inches
Size: 16.5 X 13.6 X 4 inches
Weight: 16.5 lbs

Your Body: Series II

by Seth C. Grenetz, Scot Robinson, and Andrew Kunkel
Focus Media, Inc.
135 Nassau Blvd.
Garden City, NY 11530
212-248-8799

$119.00

Rating: C—

Reviewed by Karl S. Wittman

INTRODUCTION

Your Body: Series II is one set of programs in a software collection designed to help students test their knowledge of human biology. The set consists of two disks containing two programs each, covering the skeletal, muscular, nervous, and endocrine systems. Each program contains an assortment of multiple-choice questions on the topic and a game used to motivate youngsters to continue study and achieve higher scores. Other subjects in the "microFOCUSware" library are chemistry, energy, water, and weather. This review applies to all programs in the series.

DOCUMENTATION

The disks are accompanied by teachers' notes bound in a loose-leaf notebook. These pages outline test objectives, describe the game, and summarize the help screens available to program users if they answer incorrectly. The documentation also includes hints for the teacher and student, vocabulary words and definitions, and some follow-up questions.

THE PROGRAMS

All of the programs in the collection are very similar in concept. The student selects one of the two topics on the disk, supplies his or her first name, and chooses to view instructions. The program usually describes the topical objective and the rules of the game to be played. Some of the games are played after the user correctly answers a minimum number of questions, while others are an integral part of the question process.

Program questions for "Your Muscular System," for example, relate to the characteristics and functions of skeletal, cardiac, and smooth muscle. Questions in the series require the user to select the correct answer from a list of four choices. The student either must identify a function or definition, determine which of the items are true or false, or label a diagram. A typical question: What process is not performed by smooth muscle? (1) circulation, (2) digestion, (3) breathing, (4) lifting.

In this program, each correct response earns the student one part of a rocket ship. When 10 items are assembled, the ship is completed and a short graphic shows the rocket on its voyage. Additional correct answers allow the player to travel to more planets. Other programs in the series let the student shoot at a moving target for each correct answer or collect snowballs to knock down a snowman.

A wrong answer gets the student a choice of "extra help" or immediately going to the next question. Select the extra help option, and one or more screen-fulls of information about the incorrectly answered question appear. In all programs except one, each successive help screen is accessed separately from the disk and displayed as text, charts, or sketches on the Hi-Res screen. After reading the information, the student returns to the next question.

EVALUATION

The information contained in these programs is relevant to the topic and can achieve the goal of self-testing and review under carefully controlled circumstances. However, the programs have some serious flaws which reduce their effectiveness as teaching tools. Educational programs of this type can suffer from the same basic limitations as do their printed counterparts. Multiple-choice questions supply a student with only a few possible alternate responses, emphasizing guessing and rote learning at the expense of critical thinking and writing. This type of question can also be difficult to write because each potential answer must be both unambiguous so that the student will not be mislead, and plausible so the response cannot be easily eliminated as nonsensical.

The multiple-choice method does have redeeming features upon which a computer can capitalize admirably. It can be designed as a large data bank of questions from which a teacher can draw to test students with different ability levels. It can provide immediate feedback to a student about the accuracy of his or her response, supply the appropriate answer if the response is not correct, and quickly branch to more information on the subject, which helps a student understand the mistake. Unfortunately, all of the "microFOCUSware" programs fail to achieve mastery of the possibilities of computer-assisted instruction.

The programs share several weaknesses which hamper their usefulness. According to the teachers' guide, there are about 40 different questions on each topic, far fewer than needed to test students in depth on any subject. "Your Nervous System and Brain" allows the user to select a level of difficulty as part of the game. The middle level presented only four questions before repeating itself. The programs lack the facility to add new teacher-written test items.

I expected that after I gave a wrong answer I would get a beep and the right answer. I got the beep, but no indication of which choice was correct. Instead, when I chose the "extra help" option, I had to read through the screens for information to assist me to understand my mistake and identify the correct response. This approach is effective if branching produces help screens which contain information

specific to the question and detailed enough to answer it.

This is not always the case with these programs. Some screens are appropriate and concise, while others contain too much information about unrelated topics. On other occasions, the help screen is of no help at all and does not supply enough information to generate a correct response.

This situation seems a function of the limited number of help screens available on the disk and the programming technique of linking together several screens of general information in an attempt to produce a larger number of variations. I would prefer to have either the correct answer immediately displayed plus the option of learning the reasons for my mistake or another chance to respond to the question based on reading the help screens.

To the credit of Focus Media, most help screens are well organized in outline form, contain accurate information, and highlight key words in inverse. If a student is a careful reader, he or she can pick up some useful facts while searching for the missed answer. Most of the questions are straightforward and easy to interpret, and only occasionally do the choices seem to be easily eliminated as potential answers. In addition, not only are the questions randomly generated, but the order of the responses are sometimes rotated as well.

All of the programs should follow the example of "Your Nervous System" in loading the entire program into memory. This allows switching back and forth between questions and help screens to be quick and effortless, with no annoying wait for the disk drive to access the information. Only the HI-Res pictures require additional disk use.

Contrast this with "Your Endocrine System," which not only needs the drive for every screen-full, but has the habit of superimposing one set of text on the next during transitions between screens, or with "Your Muscular System," which causes the drive mechanism to noisily move over the disk in search of the appropriate screen.

The game feature of the series may spark the beginning user of the programs to keep going and seek out the correct response. However, the games are too simple or poorly executed to keep all but the most dedicated video-game player interested for any length of time. None of the games are related to the subject, unless you count one in the "Water and Weather" series on humidity which introduces itself with the instructions "You're about to sweat it out in a grueling auto race."

I found that most of the games tend to interfere with the pace of the question and answer process. Once the novelty of the game wears off, a student may be slowed down or distracted from the job at hand. I would like an option to eliminate the game and use only the testing portion of the program.

As a group, the programs in the "microFOCUSware" series have an annoying inconsistency of acceptable user keyboard input. For example, most programs allow both a "y" or "n" and a "yes" or "no," except those on the Energy disk, which actually rejects "yes" or "no" and will only accept a single-letter command. Several programs allowed me to enter a carriage return in place of my name and printed a blank in subsequent places. Wrong input may produce a prompt at some points in the program and merely a beep in others. Such lapses in programming material for student use should be corrected.

Another virtue of computer-assisted instruction enables the computer to keep track of individual pupil progress by recording student achievement and branching to more difficult questions as mastery is gained. The "microFOCUSware" programs do not have these abilities nor can they tally questions with which students have the most difficulty so that a teacher can review relevant material. Neither can the programs generate hardcopy versions of the test questions.

The teacher's guide does not indicate student level, but the information in these programs seems most usable for eighth or ninth grade students. Given the limitations as noted, programs in the "microFOCUSware" series can supplement other instructional methods and materials. These programs are not for home use, but teachers may find them suitable for some students who can work independently to test themselves and review basic concepts in science. □

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Step by Step Two

By John Victor, Stephen Chmielewski, and Kathleen Fortmeier
Program Design Inc.
95 East Putnam Ave.
Greenwich, CT 06830
203-661-8799

Price: $89.95

Rating: B+

Reviewed by David Birnbaum

INTRODUCTION

Step by Step Two is a course designed to teach intermediate BASIC. Step by Step Two is intended primarily as a sequel to The New Step by Step, a beginner's course to teach BASIC, but it can be used by itself. Step by Step Two consists of five lessons on two disks and four cassette tapes. There are 14 main topics covered, including PEEKS and POKES, high resolution graphics, string arrays, RAM and ROM, ASCII codes and functions dealing with ASCII, CALL, and how the Apple works at the level of the monitor. A lot of interesting information on the monitor is included.

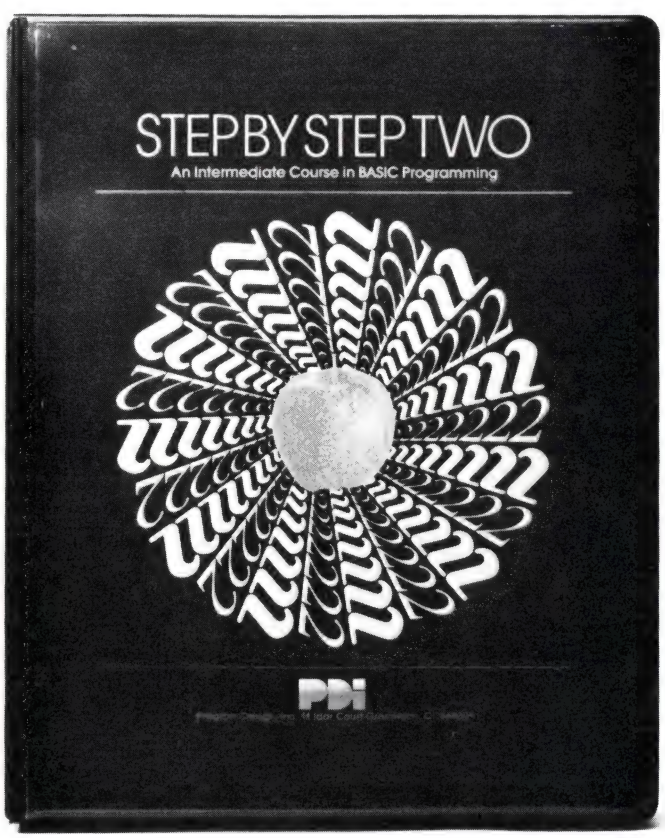
STARTING OUT

The package comes in a large plastic case, including four cassettes and four disks (two of which are backups). The manual that comes with it is used primarily as a quiz book with quizzes written for each diskette lesson. The first two pages give complete instructions on how to start out along with an idea of what you are going to learn from the course.

The first disk has three lessons on it and three quizzes. The second disk has two lessons and two quizzes. Each lesson is broken up into two related parts. The four cassette tapes run concurrently with the disk lessons. Each lesson gives you a message that tells you the right time to start the appropriate cassette tape. The course is driven from the tape. Two tones cue you in; one means "hit any key", the other means "stop tape". There are approximately 14 visual displays in each lesson part. After every visual, there is a question or two. The questions require you to use common sense in addition to the material presented in the lesson which is an approach that should help people learn faster.

LESSON CONTENT

Each lesson has a basic (pun) topic that it goes over several times. The first lesson deals with the very beginnings of how the Apple actually works. BASIC commands controlling the memory are explained, and what happens in memory when you carry out certain commands. Whenever the recorder tells you to hit a key, something happens on the screen, and the tape recorder explains. For example, numbers might move into respective memory boxes to show what happens when you POKE numbers. The screen displays are fast, interesting, and informative. A quiz follows each lesson, acting as a review to make sure you paid attention.



Unfortunately, all is not perfect. Although the questions are nice, the screen formatting could be better. Since most of the questions have choices A., B., or C., I expected the program to reject any other letter selected. The program does not do that. Instead, if you miss the A and hit S, the program interprets this as a wrong answer not as a mistype. Also, it would be more efficient if the program would accept only single letters for answers. Instead the program takes more than one letter for an answer. Using a GET statement would be much more efficient than the INPUT statement that is currently being used. Another problem: how many people need two tries to answer a true/false question? Several of these questions I answered wrong intentionally to see what would happen. The program gave me another chance to answer correctly when it was obvious what the answer was.

A more serious problem is that is is possible to bomb the program. One question showed the contents of a memory location every time a key was pressed. Shift-Ctrl-P (ASCII code 0) resulted in a ?syntax error. I had to rerun that lesson.

Perhaps the most serious problem is that three of the visuals give inaccurate or incorrect information. Fortunately, the program corrects itself later on in all but one case. When I was reviewing the program, I was confused by the explanation of control characters. Step by Step said that the Apple had 26 control characters, but in a later visual Step by Step said there were 32. This would be confusing to the novice.

One thing that I found surprising was that the very techniques the program teaches could have been used to make Step by Step itself better. Two sections showed screen formatting that might have been used on Step by Step.

COPY PROTECTION

Step by Step Two prevents the user from making copies, but two backup disks are supplied. Another thing that I found interesting was that the program lets you out into Applesoft BASIC. I could load the lessons and quizzes to see how they worked and change them to suit myself. Someone learning would have fun changing lines to see what would happen in the lesson. This seems to be the best approach when teaching BASIC.

ADDED BONUSES

The manual/quiz book that comes with Step by Step Two has some very useful charts and exhibits. The most useful charts contain ASCII codes and control characters. Neither chart is complete, however. The ASCII chart leaves out four codes, and the control chart leaves out three codes. This gives the impression that there are only 30 control codes where there are in fact 33.

There is also an introduction to games design with two short games illustrating techniques. The games use most of the BASIC taught in Step by Step. After each game is a line-by-line presentation of how the game works. Also, each lesson has eight or nine pages of programs using what the student has learned. The student is encouraged to type in the programs and test or change them to see what happens.

In addition, in the back of the book there is a music routine with explanations and 8 musical selections. Even here Step by Step gives a little false information. The book says that G is the lowest tone that can be played on the Apple and that is not correct. "On the Apple" should be changed to "With this music routine." There is also a chart that gives the proper POKES to play a certain note. Finally, there is a memory map in the back with two charts that let the student mark which lessons have been completed.

SUMMARY

Step by Step Two is a good teaching program. The listable routines, a good manual, and excellent screen displays are all nice items. In general, Step by Step does a good job of explaining the fundamental ideas concerning binary numbers, hexadecimal numbers, and other difficult concepts. Step by Step Two is one of the best programs available when learning intermediate BASIC.□

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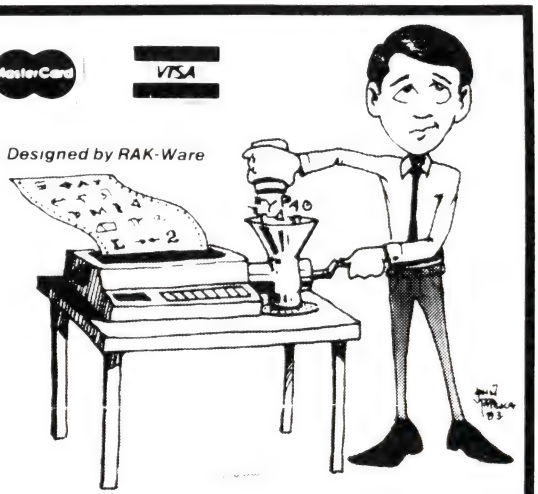

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Sensible Speller IV

by Charles A. Hartley
Sensible Software, Inc.
6619 Perham Drive
West Bloomfield, MI 48033

313-399-8877

$125.00

Rating: AA+

Reviewed by Michael Weasner

INTRODUCTION

In *Peelings II,* V2N5 (1981), Sensible Software's Apple Speller was reviewed and rated AA. Sensible recently released version four, and due to the extensive improvements, it was decided to revisit and redo our earlier evaluation.

This new version has several improvements over the earlier versions and other "spelling" programs. For example, it works with just about every word processor that will run on an Apple II or //e (or compatible) computer, whether in DOS, CP/M, or Pascal. Only two word processors are listed in the manual as being incompatible: Easy Writer and Easy Writer Pro. It also has the largest supplied dictionary and more expansion room than any other spelling program. There is room for some 53,000 words on each dictionary disk, and 80,000 words are supplied on two disks. With all DOS word processors (except Word Handler) immediate correction or suggested spellings are possible from within the Sensible Speller IV program. The package includes:

- Two copies of the program disk (protected)
- One main dictionary disk (copyable)
- One supplemental dictionary disk (copyable)
- An 88-page manual with a table of contents and an index
- A hard-cover copy of THE RANDOM HOUSE DICTIONARY, CONCISE EDITION

The package is not warranted in any way, and in fact, all warranties are disclaimed. The "Disclaimer" does mention that the product will be replaced or purchase price refunded, but no time limits are specified. For a product with this power and price, such a lack of warranty is inappropriate by a company with the reputation of Sensible Software. In actuality, Sensible Software has one of the best Customer Support services around and stands by their products and their name.

DOCUMENTATION

As with most all of Sensible's products, the manual accompanying Sensible Speller IV is top-notch. It includes a tutorial lesson and a sample file on the program disk. Descriptions of using the spelling program and other system utilities are complete and well thought out. No matter what operating system your document files are in (DOS, Pascal, or CP/M), the explanations are clear. Also included is the 2-inch thick, hard-cover edition of *THE RANDOM HOUSE DICTIONARY.* Having the source for all the words on the dictionary disks can be useful when you want to check the spelling of a word during the writing of a document as opposed to waiting for the spelling program to find your errors. I have only one complaint about the manual, and that concerns the binder that is supplied. It has a large storage compartment for the hard-cover dictionary as well as the three-ring binder section of the program manual.

The manual itself is less than 1/2-inch thick, so the bulk of the binder is for the dictionary. If you remove the dictionary from the binder (as you must to use it), then having both on your shelf will consume almost twice as much space as necessary. While the package looks nice sitting in a dealer's display case, it will look less functional in your work area. But again, as with most of Sensible's products, after you have read the manual once, you can probably put it away permanently. (Sensible has advised that a new binder will be shipped soon which is only as thick as the manual.)

(Editor's Note: After January 1983 the hard-cover dictionary will not be included.)

OPERATION

On bootup, you will be presented with the following menu:

```
S -- SPELLER
U -- UTILITIES
Q -- QUIT
```

Most of the time, you will select the SPELLER option. The first time you use the program and whenever you change operating systems, you will have to run the UTILITIES option to configure the program disk to your hardware, word processor, number of disk drives, and other parameters related to spelling. The UTILITIES menu consists of dictionary utilities, speller version to use, and speller setup. With the dictionary utilities you can create an empty dictionary disk for building your own specific dictionary, or measure the current size of a dictionary disk.

The main dictionary disk comes with about 44,000 words and has room for some 9300 more words. The size utility returns only the current word count plus the number of disk sectors free. Unfortunately, you will have to perform some math to determine the approximate number of words that can be added; why the program couldn't have performed this calculation is unknown, but the formula is supplied in the manual. At the very least, the manual should have told you that the average number of words per disk sector is 95.

Selecting the speller version requires indicating which operating system to use. The CP/M, Pascal, and Word Handler spellers are actually version 3 of the Speller, with few changes. Hence, their operation is somewhat different than the DOS version, which is version four. The differences are fully explained in the manual. If you have selected the DOS version, you can configure the program with many hardware and software parameters. Without explaining what they all mean (many are obvious), here is a list of the configurable parameters:

- Lowercase display
- Use //e alternate character set
- Keyboard type (uppercase only, game I/O mod, lowercase)
- Printer slot, width, and other parameters
- Printer initialization string (control codes)
- Document and dictionary slot and drive
- Document volume number
- DOS 3.2, DOS 3.3, SuperText, Cameo (hard disk), or Customized RWTS
- Modify character set for specific speller actions including use of international character sets
- Ignore words beginning with certain characters or control codes
- Ignore all numeric words, words with numbers, and/or acronyms
- Mark-misspelled-word options
- Length of header to ignore (required for some word processors)
- Character filter (ASCII type: negative, positive, or old Apple Writer)
- Alternate carriage return code

As you can see, this list includes just about every option available for current word processors and probably many future ones as well. Much of the power of Sensible Speller IV comes from being able to configure your speller to such detail. All changes are made "permanent" by saving them to the program disk, but they can be changed and resaved at any time.

Once you have configured the DOS version, you can then proceed to check the spelling in your documents. Since the program will actually modify your file on the disk when correcting or marking misspelled words, the manual suggests using a backup copy of your file until you verify that all the parameters have been configured properly. This is excellent advice. When selecting the SPELLER option you will see the following menu:

```
C -- CHECK SPELLING OF A DOCUMENT
L -- LIST DICTIONARY WORDS
A -- ADD WORDS TO DICTIONARY
D -- DELETE WORDS FROM DICTIONARY
Q -- QUIT SPELLER PROGRAM
```

If you have configured the program for lowercase entry, all prompts will respond properly to either upper or lowercase entry. The LIST words option supports two types of "wildcard" searches: the "?" or "*" wildcards. Entering a string like "L???R" will return words like LABOR, LAMER, LASER, LATER, LAYER, etc., whereas the string "B=T" would return BAT, BOAT, etc. A very powerful but not the most-used feature. The ADD and DELETE words options require you to create a document with your word processor that has all the words to be added/deleted. This will be most useful when creating customized dictionary disks. The normal method of adding words to a dictionary disk will be during the spelling operation. Two drives are required to add or delete words from the dictionaries.

The most-used operation will obviously be spelling a document file. Two drives will prove most useful but are not required to spell a document. Once you have inserted the document disk, a CATALOG will be displayed from which you enter the name of the file to be spelled. This filename can have the same wildcards as indicated previously, and if a matching filename is found, you will be asked if it is the correct one. Once you have the correct file, a temporary file will be created to contain any corrections made to the document. This is necessary to avoid overwriting portions of the text should the new spelling be longer than the old word. The only drawback to this is that you must insure that there is sufficient room on the disk to contain this extra file which will be as large as the original file being spelled. These files can each be as large as half the available disk space because the program will process only as much of the file as memory allows and then process the next chunk. The program will continue spelling portions of your file until the entire file is completed. The advantage of being able to correct misspellings from the speller program far outweigh the disadvantage of the temporary file.

Once the document has been "read", you will see a count of the total words and the unique words in the file. These words can be listed on the screen or printer along with a count of the number of times each word is used. This is a useful feature to see if you are over using some words. Next the file will be spelled, using as many dictionary disks as you wish. The speed of spelling is incredible: approximately 1000 dictionary words per second. After each spelling you will see the number of words remaining that did not match entries on that dictionary disk, and these words can be listed. Once you decide not to check against another dictionary, you proceed to the verification step.

At the top of the screen (the program works in 40 columns only) you will see three lines from your document, with the suspect word in inverse. This may cause you some momentary confusion since lowercase will be converted to uppercase, but the speller program ignores case so there is no problem really. You are then given the following options:

```
G -- GUESS AT SPELLING
L -- LIST WORDS FROM DICTIONARY
A -- ADD IT TO A DICTIONARY
I -- IGNORE IT
R -- REPLACE IT WITH A NEW WORD
M -- MARK AS MISSPELLED
```

The most-used options will probably be in the first three of the lower set (ADD, IGNORE, or REPLACE). The GUESS option will search a dictionary disk for a similar word, and you can then use this word to replace the misspelled one. I found this option to be surprisingly accurate and useful. Should the GUESS option not find the correct word, you can use the LIST option to better specify, using wildcards, what to search for. The ADD option will allow the suspect word to be added to the dictionary at the conclusion of the verification

process. Should the word be correct, but you don't wish to add it to the dictionary, it can be ignored. With either the ADD or IGNORE options, the word is assumed to be spelled correctly, and all subsequent uses of the same word will be ignored. The REPLACE option will allow immediate correction of the misspelled word, and you can select to have every instance of the misspelled word replaced automatically with the new spelling.

A simple editor is provided to add, delete, or insert characters. With uppercase-only keyboards, a CTRL-C will allow you to toggle the case. Once you have pressed RETURN to indicate you are finished entering the word, you are asked if it is now correct, and you can re-edit as required. If you select to have all instances of the misspelled word replaced with the new word, the case of each character in the replaced word will be matched in the replacement word. MARKing each misspelled word will append the configured "marker" to the word, which can then be searched for with your word processor.

Once the file has been entirely verified, you will be presented with a count of the number of corrections made and a chance to list these changes. Next, all the changes are saved, and the temporary file automatically deleted. If you have elected to add words to the dictionary, you will then enter the ADD words mode. You can abort the corrections to your file by pressing ESCape at any time before the final save is started, and the temporary file will be deleted, and your original file will remain untouched.

The other versions of the speller program operate very similarly to that described above. Only the immediate-replacement option is not supported. You can enter the speller from CP/M, but if you follow the steps in the manual, it will prompt you to press CONTROL RESET to reboot. This is a leftover from the version three and was before the days of the //e.

SUMMARY

Sensible Speller IV is an outstanding and important addition to your word processing system on the Apple computer. Single-drive and non-DOS environments are supported with only minor loss in capability while but retaining the largest dictionaries around. One bug was discovered in the DOS speller, and this has been corrected. Free updates are available from Sensible Software if you have one with the bug. This bug results from the file not being written back to disk correctly if there is a "dot" command as the first entry in the file. Various update policies are in effect to upgrade from earlier versions of the Sensible Speller or from other speller programs. Check with Sensible for the latest details.

If you use your Apple for extensive word processing using any word processor, then you owe it to yourself to invest in the Sensible Speller IV package. If you write professionally, then you also owe it to your readers. Even letters to Mom will benefit from using the Speller; maybe she will think you actually did learn something in high-school English. This is the Speller we have all waited for, and now is the time to get it. □

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Quick File //e

by Rupert Lissner
Documentation by Marilyn Clauder and Lorraine Anderson
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014

$100.00

Run-time Pascal based

Unlocked

Rating: A+

Reviewed by Tod Wicks

INTRODUCTION

The main reason I bought my old Integer Apple many years ago was to have a tool with which I could perform filing tasks on a rather extensive collection of classical music recordings, and on our library of books and magazines. However, there seemed no end to games and graphics programs, but darned few programs which would do the jobs I had in mind: quick entry, quick sorts, and simple reports on the printer. Oh, there were some rather cumbersome filer programs on the market, but after one rather disastrous experience trying to recover a blown serial text file, I steered clear of programs which constantly read from and wrote to the disk, especially if the program didn't close the file after opening and performing one operation or another. In fact, it wasn't until a program came out that loaded the whole file into RAM (it was stored as a binary file, rather than a text file), that I bought a new file manager program.

Oh, yes, I bought and tried some of the newer data base programs that became available beginning in late 1980. But these were meant for huge files and allowed the user to do *so* many things with the data as long as you had five or six floppy drives, and some had strange copy protection schemes, whereas others used their own DOS. Great programs, but not for me.

I continued to plod along with the RAM-based data base for a long time. By mid 1981 I had begun a mailing label business, and this program managed to do the job for us, although it did have some drawbacks.

Enter our new Apple //e and Quick File //e in mid 1983. Since we bought the program, we have been re-entering all our files. This was no easy task, so it follows that we evaluated Quick File //e rather strictly before converting to it. We found it to be extremely attractive for use as a file cabinet, as well as very simple to learn and use.

In *Peelings II* (V4N7), a rather comprehensive set of data base standards was laid out in an article titled "Data Base Standards Update". I followed that outline as I did research for this Quick File //e review.

DATA BASE DEFINITION AND CREATION

Quick File //e is a Pascal-based data storage and retrieval system written to take advantage of the keyboard and the increased storage capacity (with the Extended 80-Column card installed) of the Apple //e. It is RAM-based, therefore the files can only be as large as available memory. This is not a considerable drawback if your uses are for the card-file and simple list-type data base.

During the creation of the data base, the user is prompted through the setup process. Fields are named and will appear on screen in the order named. There is no lengthy process of defining the screen format, nor is there a need to predetermine the length of each field or what type of data it will contain (e.g., monetary, integers only, etc.). Quick File //e will allow a maximum of 15 fields per record, 76 characters per field, and 1140 characters per record. The number of records per file is dynamic: that is, the total is determined (and printed on screen) by averaging the current record lengths and comparing this total to the amount of memory left. The Extended 80-Column card increases file size by a factor of four. I need to mention here that if a field includes the words "time" or "date," the program will give them special treatment, which I'll explain later.

DATA INPUT

After creating the data base, the user is prompted through a series of menus. These menus bring the user to the part of the program needed, whether it be data entry or report generation. Incidentally, the program is internally consistent with regard to its use of conventions. For instance, the ESCape key will always cancel an operation or bring you to a higher-level menu. Data entry is a straightforward process that involves using the cursor-control keys, and certain keys in combination with the "Open Apple" key. This is the key to the left of the Spacebar. It is used as an alternate prefix key, in much the same manner as the Control key.

Quick File //e allows the use of defaults, or "standard values", in any field. The standard value can be overridden at any time. Quick File //e is also very forgiving when it comes to entering dates and times. If your input is reasonably logical (May 3, 1971; 5.3.71; 5-3-71; 5/3/71), Quick File //e will convert it to its standard format (May 3 71). Times are based on a 7 a.m. to 6 p.m. business day, but any other time will be handled as long as it is entered as military time (e.g., 1300 1:00 p.m.) or if followed with an "a" or a "p."

The only way you can lose data is by losing power. There are many built-in fail-safe flags waved at users if they try to leave the program without saving altered files. Files can be saved under a different name if old data is needed for whatever reason. As you are saving your files, you are asked the current date. This information date stamps the save and will show up the next time Quick File //e catalogs your data disks.

SEARCHING, RETRIEVAL, & EDITING

The normal screen of Quick File //e files shows a portion of the file in a columnar layout. Searching can be done manually by zipping the cursor through the list or by defining search parameters. Quick File //e provides a powerful search-selection system with 12 parameters, including BEGINS WITH, CONTAINS, and ENDS WITH. Therefore, complex searching becomes easy because the parameters and variables are matched. The search speed is inherently fast since the entire file resides in RAM. This circumvents the need for indexes of key words or time-consuming searches through a disk text file. The searching parameters also allow the user to sort the file and store the sorted version when exiting the program. Multi-level sorts are not supported, but the same effect can be achieved because the sorting process generally takes but 90 seconds for a long file, and multiple sorts can be done in a matter of minutes.

After searching for the desired record, editing that record is easy. You simply zoom onto that record and, using cursor-control keys, do the editing needed, and then leave that record. Deletion is as simple. The cursor just needs to be on the record to be deleted. Again, fail-safe flags are waved.

REPORT GENERATION

Many data bases consider the generation of reports to the printed page to be the strongest reason for using a data base management system (DBMS). Here, Quick File //e shines brightly. There are three formats: the default screen-to-printer report, and user-created tables or labels formats. Labels can be used for mailing-address labels, inventory labels, or other styles as the user might desire. The tables format is simply a column listing of the file. Of course, the fields can be in any order and be as wide as the user wishes. Some fields may be left off the report. The user can also change the name of the fields at any time without damaging data. The format may also specify certain records only, according to search parameters built by the user. While Quick File //e doesn't have an active screen calculation feature, it does allow calculations to be performed during report generation, and the numeric fields can be formatted as monetary, right-justified, and with specified decimal places. Report formats are very easy to define and save, especially if your mind isn't cluttered with the complexities of your former DBMS packages.

Prior to printing the first report, you should set up the print parameters to match your printer. This includes entering any necessary printer drivers. Other options include page formatting for line length, page length, and form-feeds.

One of the best features of printing a Quick File //e file is the ability to "print" it to a disk in a format which is readable by Apple Writer //e. You could then call the Quick File //e report while using Apple Writer and format it further, using the word processor to add such things as headers, footers, blank lines between categories of data, and so on.

DOCUMENTATION AND USER INSTRUCTIONS

Concise and well-written documentation has to be one of Apple Computer's consistently strong points. The manual for Quick File //e follows and strengthens that position. One of the first things you notice is a section labelled "Quick File Fast Lane." This points users to the appropriate section of entry in the manual, depending on their level of expertise with the Apple //e and data bases.

Especially helpful is the chapter "Getting Started." It makes good use of graphics to explain to the novice how to set up the system for this program. The manual was written specifically for the Apple //e, and the tutorial steps the beginner through file setup, search, sort, edit, and report generation. The tutorial is active through use of a sample file disk. There are also a gatefold tear-out quick-reference card and a system map included in the manual.

The index is well organized, and many items are cross-referenced. Especially highlighted in the index are references to the Open Apple options. The informative table of contents and the completeness of the index are examples of Apple's attention to detail that is attractive to newcomers to personal computing.

In addition to the manual and the quick-reference card, Quick File //e contains its own copious supply of HELP messages. Merely pressing the Open Apple and the question mark keys will bring up a HELP screen.

MISCELLANEOUS

One disadvantage to Quick File //e is that it requires two disk drives. Also, I tried out a Smarterm 80-column card, and Quick File //e didn't like it. Be sure to check out the compatibility of your present 80-column card with Quick File //e.

The only additional memory support I know of is for the Extended 80-Column card from Apple. It increases file length from 10,500 characters to 45,000.

Both the program and data file disks are copyable by using the COPYA program included with your DOS 3.3 package.

CONCLUSION

I rate this program A+ because I feel that it is probably the best $100 program on the market today. It is written specifically for the Apple //e and takes advantage of extended memory and of the //e keyboard with its upper- and lower-case, the Tab key, cursor-control keys, and the Open Apple key. This program is easy to learn, easy to use, and easy to back up. Its reports can be transferred to disk in a format that Apple Writer //e can read and modify.

Quick File //e always lets you back out of an operation, either by reversing the process, or by ESCaping to the next higher level. Nothing is ever cast in concrete with this program since flexibility is the key to a good data base program.

Quick File //e is a program for those of us who make sense out of our lives by jotting our notes on index cards and lists, only to forget where the lists were placed. Quick File //e lets the user arrange and search, and print lists or labels by whatever order desired. The keys used are consistent and usually bear a close relationship to the function. I won't use a certain popular card-file program simply because you have to use the awkward CTRL-C combination to move from one field to another rather than the RETURN key. It is senseless to have a nonstandard convention such as this. □

Nevada Fortran

by Ian Kettleborough
Ellis Computing
3917 Noriega Street
San Francisco, CA 94122
415-753-0186

$39.95

Z-80 card required

Rating: AA+

Reviewed by John Martellaro

The famous question goes as follows: "Which computer language will we all be using at the beginning of the 21st century?" The answer: "I don't know, but it will be *called* FORTRAN."

I would say that it is a tribute to the designers and current developers of FORTRAN (FORmula TRANslation) that the language has endured so long. It is dear to the hearts of many. Despite the protestations of the purists, FORTRAN is an easy and fun language to learn, and it is known by many. In fact, you should probably consider it part of your computer education to learn FORTRAN. I do not say this because I think FORTRAN is a terrific all-around language. It's simply that if you are going to learn about computers and languages, you should understand the heritage of computing. I cannot think of a better place to start than with Nevada FORTRAN.

GREAT EXPECTATIONS

In the past, I have reviewed partially scaled-down microcomputer implementations of languages. These include Tiny Pascals, Tiny BASICS, and Lisp. Ordinarily, substantial compromises are made in order to make a major language (which has its origins on large computers) run on a microcomputer. The severity of the problem depends on the language and the hardware available. A 6502 with 64K of RAM is pushing it for most major compiled languages, whereas a 68000 or 8086 with 256K and a hard disk is generally no problem. I would have expected that a $40 FORTRAN (previously nearly $200, then $29.95, now $39.95) would have severe restrictions. In fact, it does not. Moreover, except for some minor problems, I would say that this is a very fine implementation of FORTRAN, and I would not hesitate to write certain kinds of personal software with it.

FEATURES

Some programmers describe features as "documented bugs". I will restrict myself here, however, to the true features of Nevada FORTRAN. It is basically standard ANSI FORTRAN X3.9-1966. But there are powerful extensions. Some are FORTRAN 77 features, and some are designed to integrate the language into the microcomputer environment a little more pleasantly. This is an important list, so I will print it here:

1. Free-format input and output.
2. IMPLICIT statement.
3. END and ERR statements in READ and WRITE.
4. COPY statement to insert source files into a FORTRAN program.
5. Direct in-line (Z-80) assembly language.
6. Access to file system for creating, deleting, and renaming files.
7. Random access on a byte level to files.
8. PEEKS and POKES to absolute memory addresses.
9. Program-controlled time delay.
10. Pseudo-random number generator.
11. Program control of runtime error trapping.
12. Chaining of programs (but no common variables between chained programs).
13. Ability to load object code into memory.
14. CALL function to transfer control to machine language programs.
15. Program TRACE.
16. IF-THEN-ELSE nested to user-defined levels.
17. Enable and disable console abort of program.
18. ENCODE and DECODE statements.
19. Multiple subroutine RETURNs.
20. K format specification (hexadecimal values).

Departures from ANSI standard FORTRAN have eliminated the following:

1. Double precision. (The data type DOUBLE PRECISION is recognized only for source code compatibility. Arithmetic is always single precision.)
2. Complex numbers of the form (a + bi).
3. EQUIVALENCE statement.
4. Extended DATA statement of the form DATA A,B,C/1,2/3/
5. P format specification.
6. Statement functions.
7. EXTERNAL statement.
8. Subscripted subscripts.

USAGE

Creating and running a Nevada FORTRAN program is not difficult at all. You must have some kind of CP/M-based editor to create your source files. The CP/M editor or a CP/M word processor will do the job. Once the source file is created, you are going to enter FORT followed by the source file name and some compile options. For example, you can choose to send a listing of the file (of type ".LIS") to a specified drive or to the console or to the printer. You can also specify where the "executable" is to reside. To run your program, just enter FRUN d: file.obj. The compile options are clearly defined, and several examples are given.

SPEED

Speed is not one of Nevada FORTRAN's strong points. This is because the internal number representation is in BCD (binary coded decimal) instead of the usual binary. Without going into details about what BCD is, its weakness is that it is a slow way to manipulate numbers, and its strength is perfect precision when handling decimal quantities. If you are going to use a system to handle money, it should be in BCD.

I used the benchmark programs from *Peelings II,* V4N5,

page 46. Space does not permit the listing of all the programs cast into FORTRAN, so I will just show one to give those of you new to FORTRAN a feel for the language (see Figure 1).

FIGURE 1
FORTRAN VERSION OF PRIME NUMBER GENERATOR

```
***** Nevada FORTRAN 3.0 (Mod 0) ** Compiling File A:PRIME.FOR *****

0001 C      PROGRAM PRIME NUMBER
0002
0003        TYPE 'THIS IS A NEVADA FORTRAN PROGRAM TO COMPUTE PRIME NUMBERS'
0004        TYPE ' '
0005        ACCEPT 'ENTER HIGH LIMIT ',A
0006        CALL PUT(7)
0007        TYPE '2 3 '
0008        DO 100 B = 5,A,2
0009           S = SQRT(B)
0010           DO 200 C = 3,S,2
0011              IF(B/C .EQ. FLOAT(IFIX(B/C)) GOTO 100
0012   200     CONTINUE
0013           TYPE B,' '
0014   100  CONTINUE
0015        CALL PUT(7)
0016        STOP
0017        END
** Generated Code =    400 (decimal), 0190 (Hex) Bytes
```

Figure 1

The execution times are roughly that of Applesoft BASIC. As you can see from the listing below, compiled Applesoft programs can run much faster than Nevada FORTRAN. Let me say that this is not normally the case. Fortran compilers have been around for about 30 years, and most produce amazingly efficient and fast running code. (Microsoft's FORTRAN for the Apple, for example, is roughly 10 times faster. It is also roughly 10 times the price.) The lack of speed here is primarily due to the BCD format. Ellis Computing recognizes this and has priced the package accordingly. In this perspective, the price-to-performance ratio is not only respectable, it is excellent. The results of the timings are shown in Figure 2.

FIGURE 2
COMPARISON OF COMPILE AND EXECUTION SPEEDS

The Applesoft BASIC program and various compiled versions of the Applesoft are compared to Nevada FORTRAN.

Program	Mode	Compile Time (sec)	Execution Time (sec)
Prime Number			
	Applesoft	-	52
	Einstein Compiler	20	40
	Compiler Plus	5	41
	Microsoft Compiler	65	41
	Nevada FORTRAN	25	110
Sort			
	Applesoft	-	25
	Einstein Compiler	35	5
	Compiler Plus	5	5
	Microsoft Compiler	90	7.5
	Nevada FORTRAN	30	17.3
Sigav			
	Applesoft	-	44
	Einstein Compiler	30	10.5
	Compiler Plus	5	10.5
	Microsoft Compiler	93	5.5
	Nevada FORTRAN	32	37.6

Figure 2

DOCUMENTATION

I was skeptical about how good of a manual would come with a $40 FORTRAN. However, I was very pleased to see that such a thorough job was done. The FORTRAN part is 166 pages, and there are 46 more pages on the 8080 assembler which is also included. Each section has its own index, and the assembler section has dark marks on the edge of the page, which makes thumbing to the proper section easy.

The really great thing about the FORTRAN documentation is the number of examples. *Everything* is illustrated with an example. The lack of those vital examples shows up repeatedly in manuals for FORTRANS on minicomputers for which the price of a FORTRAN compiler license alone is in the vicinity of $5000. The examples in this manual will, with the help of an additional tutorial book, help the novice learn FORTRAN fairly quickly. In addition, the style of the manual, while typical of such manuals, is at least clear, readable, and in good English. (One "gotcha": the phrase "revert back" is used on page 17.)

PROBLEMS AND LIMITATIONS

There is no linker for this package. Normally, a linker allows you to have a library of compiled subroutines which can then be linked together to form a larger program. However, the COPY command, which achieves essentially the same thing, eliminates objections to the lack of a linker. Besides, you always have to keep source files, and a linker just invites a user to allow object files to float around needlessly. (In the Nevada FORTRAN, the intermediate "object files" are deleted when the executable is finally created. By some strange convention, the executables on microcomputers have the type ".OBJ", when they should really be ".EXE".)

There is a library function called PUT that sends the argument as an ASCII code to the output console. For example, CALL PUT(7) rings a bell. CALL PUT(12) ought to clear the screen on my Videx Videoterm 80-column board, but it would only do this sporadically, and then not at all.

The character-string handling capability of FORTRAN IV is indeed primitive, and it has not been enhanced in this implementation. There is only one intrinsic function that operates on character constants, and that is the CHAR function which returns the ASCII value of a character in a string. Don't try to do any fancy mailing list or data base manipulations that require strong character-handling abilities.

I don't consider the lack of double precision, complex variables, the EQUIVALENCE statement to be severe restrictions on an implementation such as this.

CONCLUSION

The speed of Nevada FORTRAN weighs against using it to develop professional, commercial software. But that is not its intended purpose. Nevada FORTRAN is useful for beginners who want to learn the language. It is useful for scientists and engineers who want to have a FORTRAN on their own microcomputer to check out algorithms and subroutines. It is useful for writing small, non-time-critical applications programs when the author's revulsion for BASIC makes that language unsuitable. In essence, Nevada FORTRAN, with its terrific price, brings a very powerful and famous language within reach of all of us.

Because the language (despite some minor limitations) is so well implemented, and because of the inclusion of an assembler and an excellent manual, and because the diskette is copyable and the price is a genuine bargain, this package rates as one of the best software buys I have ever seen. Accepting its reasonable limitations, I give it my highest recommendation. □

Ultraterm VisiCalc Preboot

Videx, Inc.
897 N.W. Grant Avenue
Corvallis, OR 97330
503-758-0521

$ 69.00

Rating: AA+

Reviewed by Michael Weasner

INTRODUCTION

The Videx UltraTerm video display card was reviewed in *Peelings II,* V4N8 (1983). The VisiCalc preboot diskette will allow various UltraTerm display modes to be used with the VisiCalc electronic spreadsheet program. The package includes a protected diskette, a backup copy, and a sheet of instructions.

OPERATION

When you boot the Preboot, the display will eventually come up in the standard Videoterm mode (24 lines by 80 columns). Due to the protection scheme, the boot is somewhat long, and in fact, it may be difficult to determine whether or not the disk is properly centered in the drive. For some reason, the time for the boot process to complete varied on my Apple drive. Sometimes, the disk needed recentering, but again, this was difficult to determine until after waiting for 30 seconds or more with no apparent results.

Once the disk has successfully booted, you will see a prompt to press any key to reconfigure the disk. This is to allow changing the VisiCalc version with which you are working. Currently, the Preboot supports versions 193, 202, 208, and 218. If you press any key during the few seconds allowed, you are then prompted to insert your VisiCalc disk. It is then read to determine the version, and then you reinsert the Preboot disk. The version is written to disk so that it will be available for all subsequent boots.

The next step is to select the UltraTerm screen mode you wish to use. Your choices are:

1) 24 X 80 -- NO INTERLACE
2) 48 X 80 -- WITH INTERLACE
3) 32 X 128 -- WITH INTERLACE
4) 24 X 160 -- NO INTERLACE

A single keypress will result in the screen switching to the selected mode immediately and a prompt to insert your VisiCalc disk and press RETURN. Option 1 allows display of VisiCalc in 80 columns (the same as with the Videoterm Preboot, reviewed in V3N9, 1982). You can then enter lowercase letters using the Enhancer II (or other lowercase keyboard), a Shift key modification, the Apple //e, or CTRL-A to toggle case. With option 1 you will see VisiCalc come up with 20 rows displayed and columns A through H. Option 2 will display 44 rows and the same number of columns. Option 3 displays 28 rows and columns A through M. Option 4 displays 20 rows and columns A through Q. As was mentioned in the UltraTerm review, the interlace modes will have some flickering with short persistence monitors.

SUMMARY

The UltraTerm VisiCalc Preboot will increase the utility of VisiCalc without actually modifying your VisiCalc disk. All the changes are done in memory with only 1K of work space being lost. The UltraTerm will also support use of the extended 80-column card in the Apple //e. This will make a total usable memory of 97K on the //e without additional memory cards. Its use will allow you to view entire spreadsheets on the screen without the need to set windows or scroll the display. Calculation speed seemed to be unaffected. In fact, none of the VisiCalc modes are affected, and all will operate just as in 40 columns. All modes were readable (requires a high-quality monitor) and with the 48-line or 160-column display capabilities, an incredible amount of information can be displayed. If you use wide or long spreadsheets, then the UltraTerm and the VisiCalc Preboot will probably be of benefit to you.

The only unfortunate aspect of the program is the require ment for the protection scheme. Since VisiCalc is protected, the Preboot must likewise be protected to protect the protection (and who says protection isn't confusing). This means that you will have to go through a several-step process to load some function keys, and then get VisiCalc up in an UltraTerm display mode. The product carries the standard Videx warranty (90 days), but as many Videx customers know, Videx will warrant their products forever. This is another excellent product from Videx. □

VisiCalc File Sorting

Version 2.0
Copyright 1982 Robert H. Flast & Company
Six Peter Cooper Road
New York, N.Y.
212-323-2272

$19.95 ($10.00 if bought in combination with any of the author's other templates or utility programs).

Unlocked

Rating: B

Reviewed by Alan Shalette

INTRODUCTION

An accessory system for VisiCalc users, VisiCalc File Sorting will allow you to sort your models' row or column entries.

HARDWARE AND SOFTWARE REQUIREMENTS

VisiCalc File Sorting's manual does not specify hardware or software requirements. These should be consistent with those specified for or used with 16-Sector VisiCalc--i.e., 48K of RAM; DOS 3.3; and a 40-column display. It will work with either one or two disk drives.

OPERATION

VisiCalc File Sorting communicates with VisiCalc via DIF files saved and loaded to VisiCalc with the /S# (S or L) command. Since DIF files contain only "label" or numerical data, sorting can't be performed on equations.

Thus, your first step will be to identify the upper-left and lower-right corner cells of the part of your model you wish to be sorted. For example, if your model contains row or column totals, these would normally be excluded from sorting and would not be exported to the VisiCalc File Sorting program.

Next, you must use the /S# command to create the DIF file to be sorted. One of the commands you must enter tells VisiCalc whether you want to write the file in row or column order. Your selection corresponds to whether you want to sort the model's columns or rows.

If you have saved only part of your model, you may then want to blank out the corresponding cells and save the rest of the model as a /SS file. This second file might contain row and column totals as mentioned above. Later, you will be able to recreate the whole model by filling in the blank space with the sorted data file VisiCalc File Sorting creates.

To prepare for the sorting step, you will need to note the numbers of the rows or columns containing the information upon which the sort will be based, your model's column width, and the name of the DIF file containing the data to be sorted.

Up to six rows or columns may be used to specify the sort sequence. Each may be sorted in either ascending or descending order. Row numbers would be specified for column sorts and column numbers (not letters) would be specified for row

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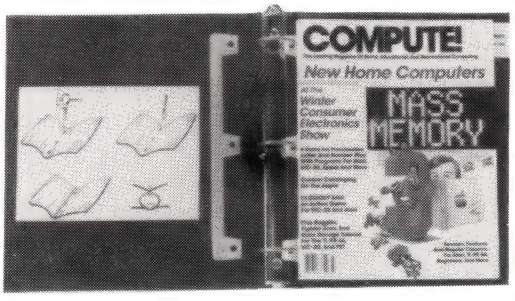

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sorts. To illustrate, consider the following simple model:

Table I

```
Column-> 1 2 3 4 Row
 1
 2 HARDWARE STORE RECEIPT
 3
-------------------------------------------------------------------
 4 PART UNIT PRICE NUMBER ORDERED EXTENSION
 5
-------------------------------------------------------------------
 6 SEEDS .19 5 .95
 7 HAMMER 12.99 1 12.99
 8 SCREWDRIVER 4.75 1 4.75
 9 SCREWDRIVER 10.50 1 10.50 10 SCREWDRIVER 6.89 1 6.89 11 NAILS
.79 3 2.37 12 ---------------- 13 SUBTOTAL 38.45 14 TAX @ .06 %
2.31 15 ---------------- 16 TOTAL DUE 40.76 17 ================
```

Suppose you wanted to sort the row entries by Part type and Unit Price within Part Type to produce the following listing:

Table II

HARDWARE STORE RECEIPT

PART	UNIT PRICE	NUMBER ORDERED	EXTENSION
HAMMER	12.99	1	12.99
NAILS	.79	3	2.37
SCREWDRIVER	4.75	1	4.75
SCREWDRIVER	6.89	1	6.89
SCREWDRIVER	10.50	1	10.50
SEEDS	.19	5	.95
SUBTOTAL			38.45
TAX @	.06 %		2.31
		TOTAL DUE	40.76

You would move the cursor to column 1, row 6 and use VisiCalc's /S#S R command to save the DIF file named CUSTOMER RECEIPT.DIF, containing the following information:

Table III

HAMMER	12.99	1
NAILS	.79	3
SCREWDRIVER	4.75	1
SCREWDRIVER	6.89	1
SCREWDRIVER	10.50	1
SEEDS	.19	5

You would also blank this data out in your original model and save the remainder to a new file (e.g., RECEIPT TEMPLATE) using /SS, containing the following:

Table IV

HARDWARE STORE RECEIPT

PART	UNIT PRICE	NUMBER ORDERED	EXTENSION
			12.99
			2.37
			4.75
			6.89
			10.50
			.95
SUBTOTAL			38.45
TAX @	.06 %		2.31
		TOTAL DUE	40.76

The EXTENSION column would contain equations needed to calculate the needed price extensions and totals.

You would then exit VisiCalc and boot VisiCalc File Sorting, telling it the name of the file you wish to sort (CUSTOMER RECEIPT.DIF); the drive it's in (1/2); column width (16); the number of columns you want to sort by (2); the column numbers containing the sort data (1 and 2--rather than VisiCalc's A and B); and whether to sort in ascending or descending sequence (A).

When sorting is complete, the system will ask to name the sorted file it will write to disk (e.g., SORTED CUSTOMER RECEIPT.DIF), and the drive to write it to (1/2).

Your last steps will be to reboot VisiCalc, load (/SL) RECEIPT TEMPLATE, and overlay the sorted data by moving the cursor to column 1, row 6 and entering /S#L SORTED CUSTOMER RECEIPT.DIF R, and hit "!". The required, sorted display will result with correctly calculated extensions and totals.

DOCUMENTATION

VisiCalc File Sorting's documentation is contained in 14 letter-size, dot-matrix printed pages. It explains, in great detail, each of the foregoing steps without benefit of either a table of contents or an index.

I found the text hard to follow and useful only after I took several passes attempting to run the system. The one example discussed in the manual, in conjunction with a demonstration file contained in the program diskette, was so simple I had trouble relating it to my own work.

PERFORMANCE

Once you get a feel for the system, its operation becomes easier to understand--although, as indicated earlier, it remains quite complex. Its processing speed is reasonable--

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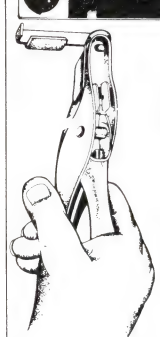

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especially when compared to the other VisiCalc auxiliary programs reviewed previously in *Peelings II* - -taking about 20 minutes to complete a single level sort and save a file containing about 3700 cells. The example given earlier might take about three to five minutes to do the same. A highly appreciated feature is the program's display of a fairly accurate estimate of the time which will be required to write the sorted file to disk--the longest processing step. Unfortunately, it scrolls up and off the screen after being displayed for just a few seconds.

VISICALC SORT PROGRAM's operating style can be best described as "brute force"- -a characteristic often associated with VisiCalc auxiliary programs. As you are prompted to input each necessary piece of information, one at a time, the program does a reasonableness check and will go on to the next item only if your input satisfies its checks. You may not go back and reenter data once it has been accepted. Nor will the system display a catalog of your diskette in case you forgot the exact spelling of your DIF file's name. If the file name you specify cannot be found, however, the program will prompt you to reenter the data. In the event of data entry error, you will need to RESET the system and reRUN it.

Not among its data checks is that of determining whether your file name complies with DOS standards- -e.g., file names must start with an alpha character. VisiCalc, on the other hand, allows you to begin a file name with a number, so problems can arise if you're not careful.

Other problems can arise if you're not careful in laying out your model. They are related to the program's sorting logic. To illustrate, suppose the row titles shown earlier in Table I were right justified:

Table V

Column->	1	2	3	4
Row				
1				
2		HARDWARE STORE RECEIPT		
3				
4	PART	UNIT PRICE	NUMBER ORDERED	EXTENSION
5				
6	SEEDS	.19	5	.95
7	HAMMER	12.99	1	12.99
8	SCREWDRIVER	4.75	1	4.75
9	SCREWDRIVER	10.50	1	10.50
10	SCREWDRIVER	6.89	1	6.89
11	NAILS	.79	3	2.37
12				
13	SUBTOTAL			38.45
14	TAX @	.06 %		2.31
15				
16			TOTAL DUE	40.76
17				

The results of a sort on columns 1 and 2, rows 6 through 11, would look like:

Table VI

HARDWARE STORE RECEIPT

PART	UNIT PRICE	NUMBER ORDERED	EXTENSION
NAILS	.79	3	2.37
SEEDS	.19	5	.95
HAMMER	12.99	1	12.99
SCREWDRIVER	4.75	1	4.75
SCREWDRIVER	6.89	1	6.89
SCREWDRIVER	10.50	1	10.50
SUBTOTAL			38.45
TAX @	.06 %		2.31
		TOTAL DUE	40.76

This happens because blanks sort above alpha characters. Moreover, if you used blank lines to separate your rows:

Table VII

HARDWARE STORE RECEIPT

PART	UNIT PRICE	NUMBER ORDERED	EXTENSION
HAMMER	12.99	1	12.99
NAILS	.79	3	2.37
SCREWDRIVER	4.75	1	4.75
SCREWDRIVER	6.89	1	6.89
SCREWDRIVER	10.50	1	10.50
SEEDS	.19	5	.95
SUBTOTAL	38.45		
TAX @	.06 %		2.31
		TOTAL DUE	40.76

When you're through sorting the model (same as above) and attempt to reconstruct the model, you'll wind up with the blank rows sorted to the top:

Table VIII

HARDWARE STORE RECEIPT

PART	UNIT PRICE	NUMBER ORDERED	EXTENSION
			12.99
			2.37
			4.75
HAMMER	12.99	1	
NAILS	.79	3	6.89
SCREWDRIVER	4.75	1	
SCREWDRIVER	6.89	1	10.50
SCREWDRIVER	10.50	1	
SEEDS	.19	5	.95
SUBTOTAL			38.45
TAX @	.06 %		2.31
		TOTAL DUE	40.76

Finally, most processing errors encountered during the sort will result in a reference to the DOS error codes contained in the DOS manual- -not much of a help.

CONCLUSIONS

If you make frequent use of VisiCalc, you're likely to find the capability presented by VisiCalc File Sorting to come in handy on occasion. Occasional use works to the advantage of VisiCalc File Sorting since the large number of steps involved can be frustrating if frequent use were required. At its price, it should be worth buying and keeping around until needed.

If you or Mr. Flast would like to tinker with the program, I believe it could be made to operate even faster if it were compiled with a system such as TASC or The Einstein Compiler, and if its "plain vanilla" DOS were modified with Diversi-DOS or one of the other DOS enhancers reviewed in *Peelings II,* V4N1 (1983). I would also suggest improving its data input routines, at least to include a disk CATALOG option. □

Viz-A-Con

Version 1.0, Copyright 1982.
Abacus Associates
Suite 240
6565 W. Loop South
Bellaire, TX 77401
713-666-8146

$99.95

Unlocked

Rating: A+

Reviewed by Alan Shalette

INTRODUCTION

Viz-A-Con is designed to consolidate VisiCalc worksheets which have identical formats.

It is one of a growing number of packages which will perform this function such as VisiBlend from Micro Lab (rated A in *Peelings II,* V4N3), The Consolidator from Omega Microware (rated D in V3N9), MergeCalc from Cypher and VC-Manager from Micro Decision Systems.

HARDWARE AND SOFTWARE REQUIREMENTS

Viz-A-Con should work with almost any Apple II or //e which has at least one disk drive operating under DOS 3.3. A printer and a second disk drive are optional but recommended.

FEATURES AND FUNCTIONS

Viz-A-Con accepts DIF (Data Interchange Format) files created with VisiCalc's /S# command and will use the consolidated information to produce: (1) printed reports; (2) print-format files on disk (similar to those produced with VisiCalc's /PF command); or (3) DIF files on disk. The latter two types of results may be used for additional processing--i.e., its print-format files are compatible with many word processors, and its DIF files may be read by VisiCalc or Viz-A-Con.

Before Viz-A-Con can do its job, you must:

- Create DIF files for the spreadsheets you want to consolidate.
- Create a new spreadsheet containing label information you want to appear on the consolidated result and save it as a DIF file.
- Tell Viz-A-Con the names of those files.
- Specify the type(s) of results you'd like the system to produce--i.e., printed reports, print-format files, or DIF files (reports may also be sent to your display screen).

Example: Multi-Product Forecast

Suppose you've developed individual product forecasts for a multi-product division and want to consolidate them to develop a division-level forecast.

First, you would create a DIF file for each product forecast using VisiCalc's /S# command, making sure that all the files were formatted exactly alike.

Second, you would strip all the numbers from one of the product forecasts and make any changes to its report, column, or row titles which should be shown on the consolidated report. You would then save this format as a DIF file.

Next, you'd boot Viz-A-Con and tell it the names of the files you want to consolidate, listing the name of the format file first. Finally, you'd tell Viz-A-Con the types of output to create and the names of any disk files you'd want to create.

Unique Ability: Stored Instructions

Viz-A-Con stands out from the other two packages reviewed in *Peelings* by being able to store its processing instructions for later use.

Input and output file names, output instructions and all the other instructions you need for complete consolidation processing can be saved in named, "consolidation process files". Moreover, since Viz-A-Con can process the results of prior consolidations which were saved in DIF files, you may create sequential consolidations by saving corresponding instructions in additional process files. Finally, you can define named "consolidation group files" in which you can specify series of consolidation processes.

To continue the example, you could develop a company-wide forecast for five multi-product divisions by:

- Creating five separate process files to consolidate individual product forecasts for each division--including instructions to both print and save the consolidated forecasts in DIF files. Each process may consolidate up to 50 files.
- Creating an additional process file to consolidate the five consolidated division forecasts.
- Creating a consolidation group file containing the names of the six preceding processes. Each group file may name up to 80 process files.

To help keep track of all these steps, the user manual contains a form which can facilitate preparation of process or consolidation group files, and the system provides a utility which will print the contents of the files for future reference.

Another main-menu option allows you to print any print-format file produced by either Viz-A-Con or VisiCalc using. This instruction cannot be included in a process file, however. Instead, if you want a stored process to include printing an original spreadsheet, you can tell the system to consolidate just one DIF file and print the results. You may never want to use VisiCalc to print your spreadsheets again!

Benefit: Unattended Operation

To run the complete process, you only need to boot Viz-A-Con, tell it the name of your consolidation group file, and turn on your printer. Alternately, you can run any of the five, division-level consolidations by naming their respective process files.

If all your data were contained on one diskette, you could walk away from your Apple while Viz-A-Con was operating since the entire process can continue unattended! If your data are on more than one disk, the system will prompt you when it needs the next file(s).

DOCUMENTATION

VIZ-A-CON's user manual contains about 60 letter-size pages in a loose-leaf binder. It contains almost all you'll need to know to use the system and some useful examples, but it is poorly organized and is written in such a way that it can be hard to understand.

Some needed improvements include:

- An index, a glossary, and an indication of spreadsheet-size limitations, if any.
- Use of pictures/flowcharts to help the reader visualize the overall processing flow--within both VisiCalc and Viz-A-Con.
- Closer coordination of terms used to describe processing in the manual with terms used in the system menus and command prompts--e.g., the manual talks about "consolidation process files" which the system calls "response files".
- Clarification of the examples presented, by consolidating the sample-session illustrations contained in the Appendixes with the sample-session tutorials contained in Chapter 5.
- Reduction of repetitious descriptions, by consolidating the HOW TO SET UP A CONSOLIDATION SYSTEM and OPERATIONAL DESCRIPTION chapters.
- Better proofreading to eliminate sentences such as "The Viz-A-Con system one Viz-A-Con master for multiple applications."

PERFORMANCE

Viz-A-Con processes its stored instructions brilliantly, but setting them up can be quite frustrating until you get the hang of the system.

The most important advantage of this system, noted earlier, is that you can set it and forget it--walk away until processing is completed and return to a complete set of reports and stored files. With this operating approach, the time to complete individual processing steps is almost immaterial. Nonetheless, Viz-A-Con operates about as fast as VisiBlend, and both of them are much faster than The Consolidator.

Viz-A-Con can appear to work more slowly than VisiBlend, however, because it may be called upon to complete a greater number of processing steps. Thus, while the two systems took about the same time (12 to 14 minutes) to process and print the results of consolidating two 50-sector VisiCalc files (18 columns by 75 rows), Viz-A-Con took a total of 25 minutes to do the consolidation, print each of the two subsidiary reports and the consolidated report, and save the resulting consolidation on disk as DIF and print-format files. I should note that the entire process worked flawlessly.

I should also note that Viz-A-Con truncates all numbers to integer values, whereas VisiBlend prints the precise results of its calculations. Further, while both systems add numbers in corresponding locations on multiple worksheets to develop their consolidations, VisiBlend will also calculate averages (arithmetic means) where specified on its format file(s).

Of all its processing steps, report printing seems to be most arduous for Viz-A-Con, and I can't help but think that the process could be improved. It is considerably slower than VisiCalc.

The most arduous task for users is to set up process instructions and files since the system doesn't communicate very well. For example:

- In general, whenever you need to enter file names, you should be allowed to look at a catalog of your data diskette. Viz-A-Con will do this, but only in response to an error condition. That is, you must first enter an invalid file name. Then, the system will tell you how to list the catalog.
- Following is a typical error response which I think illustrates the system's awkward use of language and unpolished programming style (all the following constitute one message):

  FILE filename
  NOT FOUND

  TYPE ? TO VIEW CATALOG OR

  HIT ENTER TO RETRY,
  REENTER FILENAME OR @ TO STOP?

- Under some circumstances, error conditions will cause the system to forget that you told it to look for data files on drive 2. In these circumstances, it will list the catalog of the diskette in drive 1, and you'll need to be crafty to get it to look back at drive 2 without starting all over (it can be done by entering CATALOG,D2 in response to the filename prompt).
- When setting up a processing sequence, the system asks you whether (Y/N) you would like printed output, a print-format file or a DIF file. The system will allow you to respond "N" to each prompt and will process the consolidation without providing any results.
- Before processing begins, you are told to turn on your printer, but the slot is not initialized (e.g., by sending a PR#1 command to DOS). If you use an NEC Spinwriter/Serial card combination such as I do, you will need to reset the printer when the system actually tries to print a report.

In short, while the setup process can be improved significantly, actual processing works very well.

CONCLUSIONS

I often find it necessary to build multiple models into single VisiCalc spreadsheets so I can develop consolidations. As a result, I've bought a 128K RAM card and a preboot package (total cost of over $700) to be able to run spreadsheets which have assumed monumental proportions.

The handling aspects of the other consolidation packages I've bought and reported on in *Peelings* are cumbersome and time-consuming. With Viz-A-Con, it is quite possible that I could do more with less memory while saving time needed to produce my reports. I expect Viz-A-Con could do the same for you. □

Viz-A-Merge

Version 1.0, Copyright 1983.

Abacus Associates
Suite 240
6565 W. Loop South
Bellaire, TX 77401
713-666-8146

$99.95

Unlocked

Rating: B

Reviewed by Alan Shalette

INTRODUCTION

Here's a truly unique member of the VisiCalc utility family. It should catch the attention and interest of VisiCalc users who need to merge rather than consolidate spreadsheets.

What's the difference between merging and consolidating? In spreadsheet consolidation, you may have two or more versions of the same sheet which you want to add together. After consolidating the sheets, you would show the results on another version of the same sheet. Several consolidation packages have been reviewed previously in *Peelings II* including: The Consolidator (rated D in V3N9); VisiBlend (rated A in V4N3); and Viz-A-Con, also produced by Abacus Associates (rated A+ in this issue).

Merging spreadsheets allows you to build new spreadsheets made up of specified rows or columns of two or more different sheets. For example, suppose your company had two divisions (A and B) which, in turn, are made up of a total of five departments. You've built two summary tables which show total fiscal year (FY

Table 1 – DIVISION A RESULTS FOR FY 19XX

	DEPT 1	DEPT 2	DIV A
1ST QTR	2	10	12
2ND QTR	1	20	21
3RD QTR	4	40	44
4TH QTR	5	30	35
TOTAL	12	100	112

Table 2 – DIVISION B RESULTS FOR FY 19XX

	DEPT 3	DEPT 4	DEPT 5	DIV B
1ST QTR	400	4000	80000	84400
2ND QTR	100	2000	10000	12100
3RD QTR	200	1000	10000	11200
4TH QTR	200	3000	50000	53200
TOTAL	900	10000	150000	160900

Table 3 – MERGED COMPANY RESULTS FOR FY 19XX

	DEPT 1	DEPT 2	DIV A	DEPT 3	DEPT 4	DEPT 5	DIV B	COMPANY
1ST QTR	2	10	12	400	4000	80000	84400	84412
2ND QTR	1	20	21	100	2000	10000	12100	12121
3RD QTR	4	40	44	200	1000	10000	11200	11244
4TH QTR	5	30	35	200	3000	50000	53200	53235
TOTAL	12	100	112	900	10000	150000	160900	161012

19XX) results for each of the two divisions as illustrated in Tables 1 and 2.

Now, you want to produce a final report showing total company results by quarter, department, and division as in Table 3. You could build the new merged sheet by re-entering all the data and labels in Tables 1 and 2, or you could use Viz-A-Merge to extract the appropriate information from disk files and to create the new merged sheet automatically. When this was done, you would only need to add the last column in Table 3, titled COMPANY, to develop company totals.

HARDWARE AND SOFTWARE REQUIREMENTS

Viz-A-Merge should work with almost any Apple II or //e which has 48K of RAM and at least one disk drive operating under DOS 3.3. A printer and a second disk drive are optional but recommended.

FEATURES AND FUNCTIONS

Viz-A-Merge works with DIF (Data Interchange Format) files created with VisiCalc's /S# command. In turn, it produces merged worksheets which may be in the form of: (1) printed reports; (2) print-format files on disk (similar to those produced with VisiCalc's /PF command); or (3) DIF files on disk.

The latter two types of results may be used for additional processing--i.e., its print-format files are compatible with word processors which can read standard text files, and its DIF files may be read by VisiCalc, Viz-A-Merge, Viz-A-Con, or other systems.

All three types of results may be produced as the result of each merge operation.

Basic Processing Steps

Overall, merge processing takes place in six steps:

1) Use VisiCalc to save the models you want merged as DIF files using its /S#S command. These are called the base models.

2) Use VisiCalc to create a new spreadsheet containing label information you want to appear on the merged result (e.g., COMPANY column in Table 3) and save it as a DIF file. This is called the format model.

3) Use VisiCalc to create another copy of the format model, adding new calculations (e.g., row totals). Save this model as a regular VisiCalc file with the /SS command. This is called the overlay model.

4) Tell Viz-A-Merge the names of the format and base models, and of the resulting merged model including the coordinates of the rows or columns you want to move from the base models to the merged model.

5) Tell Viz-A-Merge the type(s) of results you'd like the system to produce--i.e., printed reports, print-format files or DIF files (reports may also be sent to your display screen).

6) Reboot VisiCalc when merge processing is done and load the merged results DIF file. Then, load the overlay model to complete calculations for cells not included in the merged results model.

Stored Instructions

Input and output file names, coordinates, output instructions, and all the other instructions you need to complete merge processing can be saved in named "process" files. Moreover, since Viz-A-Merge can process the results of prior merges which were saved in DIF files, you can create sequential merges by saving corresponding instructions in additional process files. Finally, you can define named "group" files in which you can specify a series of processes. This allows you to automatically process several different merges in one processing run.

To start Viz-A-Merge processing, all you need to do is to tell it the name of the process or group file containing the instructions you want to process. If all your data were contained on one diskette, you could walk away from your Apple while Viz-A-Merge was operating since the entire process can continue unattended! If your data are on more than one disk, the system will prompt you when it needs the next file(s).

DOCUMENTATION

Viz-A-Merge's documentation is essentially the same as Viz-A-Con's and suffers all the latter's problems.

The user manual contains about 60, letter-size pages in a loose-leaf binder. It contains almost all you'll need to know to use the system, but it's poorly organized, and its readability could be significantly improved.

The program disk includes a series of sample files and instructions which can help you get a feeling for the system. Their operation is also documented, but, here too, the documentation is not well organized and may serve to confuse rather than to illuminate.

PERFORMANCE

Like Viz-A-Con, Viz-A-Merge processes its stored instructions brilliantly, but setting them up can be quite confusing, frustrating, and time-consuming.

An important advantage of this system, noted earlier, is that you can set it and forget it--walk away until processing is completed and return to a complete set of reports and stored files. While its processing speed is reasonably fast, with this operating approach, the time to complete individual processing steps is almost immaterial. An annoying aspect of its processing, however, is that you must hit the RETURN key before it will print each report. Additional, detailed comments on Viz-A-Merge's operating characteristics may be found in the Viz-A-Con review.

CONCLUSIONS

Although the operating styles of Viz-A-Merge and Viz-A-Con are very similar, I gave Viz-A-Merge a lower grade because its instructions are more complex. With its weak documentation and poor handling characteristics, it can be significantly more confusing and frustrating to use than Viz-A-Con.

If Abacus decides to make improvements in both products, I'd also suggest combining the two systems into one. This would allow interleaved consolidation and merge processing without having to switch back and forth between the two programs.

Nonetheless, if your VisiCalc modeling requirements include an ability to automatically "cut and paste" your spreadsheets, Viz-A-Merge may be well worth the effort required to become familiar with its operation. □

The Complete Handbook Of Personal Computer Communications

by Alfred Glossbrenner
St. Martin's Press
175 Fifth Avenue
New York, NY 10010

$14.95 (paperback)

Reviewed by Michael Weasner

Occasionally a book comes along that will have a profound influence on life and the human adventure. Sometimes it is a work of fiction or science fiction, sometimes a treatise on some aspect of living, and sometimes a biography. But rarely is it a book on personal computers. *The Complete Handbook of Personal Computer Communications* is a book that this reviewer believes will have a tremendous impact on the already exploding information industry. In its 325 pages, anyone desiring to "go online with the world" will find out just how it's done, what equipment is required, and where to go to get online. No prior computer or telecommunications knowledge is required to learn from the book, and the information is essentially computer independent. The first paragraph of the book's introduction states:

> If you're one of the four million people who own a personal computer--or one of the millions more who are thinking of buying one--this book could change your life. You may not be aware of it, but as a present or prospective personal computer owner, you are only a few steps away from entering an expanding universe of incredible size and power.

Mr. Glossbrenner's perspective is quite correct, and his book goes a long way toward helping every user take those few steps into this exciting and useful new world.

In *Peelings II*,V4N6 (1983), we reviewed some of the available information systems or utilities (The Source, CompuServe, Delphi, Dialog, The Official Airline Guide). The "Handbook" (as I'll call it here), goes beyond these few and discusses just about every existing online system. A look at the table of contents will give you an indication as to just how broad the scope of the book is.

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I would say that it is all accurate (except for changes made by some systems since the book was written).

The author has provided sample screens and sample sessions for most of the systems discussed. Coupled with the explanations in the text, some of the fear which usually accompanies the first few times online should be diminished. There are also what are called "Online Tips", set off in boxes, that include relevant but not required information. For the new personal computer communicator, these tips can be skipped the first time through, but for the experienced user (or those wanting to become experienced) these tips can provide excellent starting places for further exploration. The appendices will assist you in troubleshooting and help you out while online to some systems. They also provide a handy single reference source for phone numbers, addresses, and the like.

SUMMARY

The Handbook really is complete and well written. The discussions are never overly technical. In fact, it is a book which can be enjoyed, both for the information provided and the author's style. The only drawback is that it is a bound paperback; I would have preferred that such a handbook be in a three-ring binder and an update subscription service be provided. Then it could have been kept up-to-date and expanded as well. Since the book has proven to be a success (now in its fourth printing after only five months), I hope that St. Martin's and the author will consider this. Still, the book deserves to be on every user's and potential personal computer user's shelf. If you just want to know what all the excitement is about when you read the newspaper stories on the exploding information industry, then you need to read this handbook. If you already are "online" to some system but want to know more about what other systems are available or more about computer communications in general, then you must read this book. Whatever your reason, *The Complete Handbook of Personal Computer Communications* will help you in understanding and living in the "Information Age". □

Appletizers

Appletizers is based on information provided by product manufacturers/publishers or their agents. Peelings II accepts no responsibility for the accuracy of the information.

Business/Finance

UltraPlan is a spreadsheet program designed to complement the Apple II and //e computers and to automatically take advantage of a wide range of memory cards up to 512K, as well as the Videx display cards. The program has a command structure similar to VisiCalc and includes individual column widths and a variety of security commands. With UltraPlan, standard VisiCalc or DIF data files can be used to insure compatibility with a wide range of programs.

The UltraTerm, Videx' newest display peripheral, displays and edits UltraPlan models on a 128 column by 32 lines, or one of five other screen sizes ranging from 80 to 128 columns and up to 48 lines. Five software-selectable attributes combining inverse with highlight and lowlight offer the most readable characters available for the Apple computers.

Besides having all the other features of VisiCalc, UltraPlan: has easy-to-follow menus for printing and accessing the disk; can be used with the Videoterm or in Apple's 40-column mode; supports upper- and lowercase; uses control characters to HOME or jump the cursor around the screen; and will adjust the width of each column individually. $169.00
Videx
1105 NE Circle Blvd.
Corvallis, OR 97330
503-758-0521

TIME is MONEY personal is a personal/small business financial management package designed for the person with no accounting or bookkeeping background who wants a fast, easy-to-use personal accounting system.

TIME is MONEY is suitable for a single checkbook or an entire small business and will balance your checkbook(s),calculate and monitor your budgets, calculate your net worth, print your checks, and track fully or partially tax-deductible items. Full report generation and graphics capabilities are included. TIME is MONEY can keep track of 240 accounts (checking, savings, credit cards, etc.), 240 expense categories, 240 income types form 240 income sources, all of which may be placed on a single disk. In addition, you may add, delete, or edit any category or any transaction at any time.

With a system of "virtual menus" (which allow instantaneous movement to any point within the program) combined with the efficiency of a totally machine language program, TIME is MONEY is extremely fast and responsive.

TIME is MONEY is available for the Apple II, II+, //e, or Apple-compatible computer. Only one disk drive is necessary, and a printer is optional. ($100)
Turning Point Software, Inc.
11A Main Street
Watertown, MA 02172
617-923-4441

Educational

A new educational courseware program, **Capitalization Plus,** covers all capitalization rules, generating over 815,000 different sentences. The student can study a rule, do a diagnostic test, or practice capitalizing sentences. A changeable database allows the teacher to modify these sentences further (such as inserting student names). Capitalization Plus is available for the Apple II, II+, and //e, requiring 48K and one disk drive. A 30-day evaluation period is given to schools with a school purchase order. ($39.95)
MICROCOMPUTERS WORKSHOPS
225 Westchester Ave.
Port Chester, NY 10573
914-937-5440

Reader Rabbit and The Fabulous Word Factory teaches essential prereading and early reading skills to children aged 5 to 7. By helping Reader Rabbit match pictures and words, label boxes, and load words into a word train, children learn to recognize and spell more than 200 three-letter words. (Apple II computers; $39.95)

Word Spinner takes young readers, ages 6 to 10, on a whirl through the alphabet to learn the building blocks of reading. In building more than 500 three-letter words and 1000 four-letter words, children learn to recognize word patterns and develop critical vocabulary and spelling skills. Emphasis is placed on proper positioning of vowels and consonants to enhance word pattern recognition. (Apple II computers; $34.95)

Number Stumper, a computer-age version of a classic 14th century game of chance, teaches basic addition and subtraction. Using animated dice, children aged 6 to 10 create and solve mathematical equations and develop abstract reasoning and strategic thinking skills. (Apple II computers; $39.95)

A fast-paced, race-against-the-clock number strategy game, **Addition Magician,** teaches the basic concepts of addition and flexible thinking about numbers to children aged 6 to 10. (Apple II computers; $34.95)
The Learning Company
545 Middlefield Road, Suite 170
Menlo Park, CA 94025
415-328-5410

Olympic Learnathon, an alphabet and number learning program, features the summer Olympic sports of hurdles, javelin throwing, and archery in Hi-Res graphics with optional sound. The interactive game format reinforces learning. In addition to increasing letter and number recognition, children will become familiar with the computer keyboard. The program contains an on-screen HELP keyboard. (Requires an Apple computer with one disk drive; $29)
K-12 MicroMedia
172 Broadway
Woodcliff Lake, NJ 07675
201-391-7555

Polywriter, is a music-writing program that lets anyone get an accurate printout of whatever they play on the Soundchaser Computer Music System's keyboard in any desired score format: single treble line, single base line, piano score, choral score, treble clef with piano, bass clef with piano, and full orchestral score.

POLYWRITER prints in standard music notation and accurately handles note division, seconds, accidentals, ties, 8vas, flags and beams, split stemming, triplet brackets, rests, any time signature (up to 15 including complex and asymmetrical) and key signature, transposition up or down 9 half steps, and logical allocation of space.

POLYWRITER has a full-scale editor that allows for all standard features as well as lyrics and chord symbols.

POLYWRITER requires a Soundchaser Basic System, an Apple II, II+, //e, or compatible equivalent with one disk drive, monitor, Grappler printer interfaced card, and a dot-matrix printer with graphics. ($595.00)
Passport Designs, Inc.
625 Miramontes St., Suite 103
Half Moon Bay, CA 94019
415-726-0280

Furniture

The **Jr. Executive** computer roll-top desk has been engineered and designed for the professional and home computer user. This computer desk has four security locks (located on tambour, file drawer, storage cabinet, and center drawer) to prevent tampering and system theft. There is an automatic power shut-off feature incorporated into the center drawer slide with a four-plug power strip. The desk has a removable ventilated rear panel to facilitate system hook-up and heat dissipation.

Mounted on eight adjustable glides and constructed of genuine oak, this attractive "information console" will enhance the decor of any home or office. The desk is designed to house Apple, IBM PC, PC jr., DEC Rainbow, Epson, and other comparably sized microcomputer systems. Dimensions are 24" D X 50" W X 46" H. Suggested retail is $1175.
HIGHLAND THREE, Inc.
P.O. Box 795003
Dallas, TX 75379
214-867-4577

HGR6 Double-Res Graphics Package for the Apple //e (with extended 80-column card) lets you use the //e's double resolution Hi-Res graphics as easily as you presently use standard Hi-Res. Many new functions are added directly to Applesoft, so you can use double-res in all your existing Hi-Res programs, or write new programs using the familiar graphics statements. HGR5 and HGR6 give you 16 colors with 280 X 192 resolution for compatibility with your existing programs; and GR2 gives you 80 X 48 resolution Lo-Res graphics.

HGR6 Double-Res also lets you easily save double-res images on disk, either in standard form or compressed to take less disk space. The slide show program included is used to display regular Hi-Res, double Hi-Res, and compressed double Hi-Res images either sequentially or selected one at a time. ($49.95)
ALF Products, Inc.
1315-F Nelson Street
Denver, CO 80215
303-234-0871

Hardware

A Mouse For The Apple

Apple Computer will offer a mouse and new software called **MousePaint** early this year for its Apple II personal computers.

A mouse is a pointing device that can be used instead of a keyboard to select computer operations and modify information displayed on the screen. The mouse option opens up a new dimension of utility for the Apple II product line.

AppleMouse II will be packaged with MousePaint software that uses the mouse to design charts, diagrams, freehand drawings, and other visual aids for reports and presentations. Users can insert text in a drawing and can choose from a variety of character fonts and fill patterns. MousePaint simulates bit-map graphics to support the Apple II's high-resolution capabilities.

Independent software developers are being encouraged to write applications that take advantage of the mouse. Most future Apple software programs for the Apple II family will offer the mouse as an option.

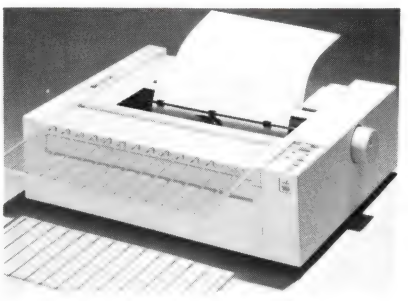
Apple is also developing a mouse to work with Apple /// personal computers.

Apple Computer has introduced a new dot-matrix printer, the **Imagewriter,** designed especially for reproducing Hi-Res graphics at high speeds. The Imagewriter is fully compatible with Apple's Lisa, Apple ///, Apple II+, and Apple //e. It prints Hi-Res graphics at a rate of up to 180 characters per second (cps) and full text up to 120 cps. The new printer utilizes bit-map graphics technology to support the Lisa computer's graphics capabilities.

The Imagewriter uses a standard RS-232-C serial interface, so it will connect directly to the Apple ///'s or the Lisa's built-in serial ports. Apple's Super Serial Interface Card connects it to the Apple II+ or //e.

Operational noise is less than 53 dB(A), a sound level lower than background conversation.

The Imagewriter prints in a 7 X 9 dot matrix and features eight character fonts. Users can design up to 175 additional characters. Various fonts, underscoring, and sub- and superscripts can be mixed in the same printed line.



The new printer provides variable resolution from 72 to 160 dots per inch, variable pitch from 10 to 17 characters per inch, variable line spacing from 1/6

inch to 1/144 inch, and proportional font and spacing.

The Imagewriter uses either friction-feed or adjustable-width pin-feed tractors and accommodates a range of paper sizes from 3 to 10 inches wide. It uses single sheets of paper, fan-fold continuous forms, roll stock, and pre-cut labels. Up to four copies can be printed at a time.

Each printer comes with an accessory kit that contains the appropriate connector cables, a user's guide, an applications manual, and software for printing Hi-Res graphics. ($675)
Apple Computer, Inc.
10260 Bandley Drive
Cupertino, CA 95014
408-996-1010

Business professionals who use Apple II personal computers can now add the storage capacity and increased performance of **ProFile,** Apple Computer's Winchester-technology disk drive. Profile use with an Apple II is made possible by two new software products from Apple: ProDOS, Apple's new operating system for the Apple II, and The Apple Pascal Development System, which has been revised to support ProFile. Any application based on ProDOS or Pascal (Version 1.2) can use ProFile.

ProFile offers storage capacity up to the equivalent of 35 floppy diskettes--about 1200 single-spaced, typewritten pages--and retrieves information 10 times as fast as a conventional floppy disk drive.

ProFile is packaged with Backup II, a software utility that backs up and restores files stored on ProFile. With Backup II, all stored files, even those too large for a single floppy diskette, can be transferred to and stored on backup floppies. If data needs to be restored on ProFile, Backup II users can restore just one file, a particular collection of files, or the entire contents from the backup diskette. The utility also allows users to back up only those files which have been updated since the last time a backup was made, or since a specific date and time.

ProFile can be used with Apple II, Apple II+, or Apple //e computers that have 64 or more kilobytes of internal memory. In addition to Backup II, purchasers of ProFile for an Apple II will receive an interface card to connect ProFile to one of the computer's expansion slots and a software utility to manage Pascal files on ProFile. (Approximately $2200)
Apple Computer, Inc.
10260 Bandley Drive
Cupertino, CA 95014
408-996-1010

New integrated software for Apple // e and Apple /// computers combines word processing, data base management, and financial modeling. **AppleWorks** (for the //e) will be marketed by Apple Computer beginning in March. The Apple /// product is called **III E-Z Pieces** and is available from Haba Systems, Inc., Van Nuys, California.

Designed for people who require several productivity tools in their work, AppleWorks and III E-Z Pieces can be used in a business or home environment. Each function operates with the same speed as many stand-alone applications, and the program provides three levels of integration that further increase efficiency for the user. Users can move freely among files in any of the three applications and can easily move information among files produced by the same application or from any file to a word processing file, using the program's "cut" and "paste" functions. Up to 12 files can be contained in memory at once.

The word processing application displays documents on the screen as they will appear when printed and incorporates advanced text-processing features such as proportional spacing, superscripts and subscripts, boldface characters, and find and replace capabilities.

The spreadsheet program provides a large work area of 999 rows by 127 columns for financial models. Program features include precise numerics accurate up to 15 digits, variable column widths, extensive cell formatting commands, and row sorting. AppleWorks and III E-Z Pieces can read VisiCalc data files and can read and write DIF files.

The data base manager is similar to Apple's Quick File data management system. Users can arrange up to 30 categories of records in alphabetic, numeric, date, or time order. The program is memory-based, so sorting is fast--for example, using AppleWorks, 800 records will sort in 10 seconds. The program can read Quick File data files and can read and write DIF files. AppleWorks and III E-Z Pieces include a "Desktop Manager" that handles utility functions such as loading and saving files, formatting disks, and specifying printer information. The desktop manager is menu-driven for easy use.

Both AppleWorks and SOS-based III E-Z Pieces can use mass storage systems, including Apple's 5-megabyte ProFile hard disk, and data files can be used interchangeably between Apple //e and Apple /// computers.

AppleWorks requires an Apple //e with 64K bytes of memory and an 80-column card, one floppy disk drive, and a monitor ($250). III E-Z Pieces requires an Apple /// computer system with 256K bytes of internal memory ($295).
Apple Computer, Inc.
10260 Bandley Drive
Cupertino, CA 95014
408-996-1010

Word Processing

The first and only spelling checker designed specifically for use with the the Apple version of BANK STREET WRITER, **Bank Street Speller,** automatically proofreads your writing, searching out spelling errors and typos and highlighting them--in context. After an error is detected, BANK STREET SPELLER will suggest a correct spelling, if desired. Or, drawing on BANK STREET SPELLER'S electronic dictionary, you can look up spellings, even using "wildcard" characters if you are unsure of a word. BANK STREET SPELLER will then automatically insert the correct spelling directly into your BANK STREET WRITER text files, replacing misspelled words globally or instance by instance.

BANK STREET SPELLER is also designed to help you become familiar with your vocabulary and patterns of word usage. It will display or print out alphabetical word lists and provide a count of the total number of words used in a document. It will also let you know the number of unique words that you have used. With two disk drives, you can create your own custom dictionary, adding your own special words.

BANK STREET SPELLER looks like and works like the BANK STREET WRITER, using the same screen layout, control keys, easy-to-follow menus, and prompts. ($69.95)
Broderbund Software
17 Paul Drive
San Rafael, CA 94903
415-479-1170□

Newsbytes

By Wendy Woods

Happy Big Brother:

Here's a cheery thought to start off the year: the IRS is using mailing lists to make sure we're all paying our taxes. Despite the strenuous objections of the Direct Marketing Association, the IRS has obtained the names of two million people in Brooklyn, Wisconsin, Indiana and Nevada and will, in this first "test project" compare those names with tax returns. If you're on a list, but haven't filed 1982 taxes, the IRS promises to catch you. If the sting is successful, the feds will also employ it to track down tax underpayers by 1985. The firm which provided the lists to the IRS is listed below.

CONTACT:
Internal Revenue
Service
Washington, D.C.
202-566-5000

Dunhill Company
Washington, D.C.
202-331-7724

New Commodore Computers:

Reports are in from the Consumer Electronics Show in Las Vegas. Commodore introduced three new home computers and announced it's become the first computer company to sell $1 billion worth of products in one year (83). The new machines are the 264, 364V and SX64. The first two are upgrades of its current machines, the SX64 has a 6-inch color screen, a disk drive and will cost no more than $1000. The significant difference of all the machines is that they will have built-in software, programmed right into the computer circuits, says Commodore. The machines will be available in April. Ironically, just as things are looking rosy for the company, Jack Tramiel, president of Commodore, unexpectedly resigned "for personal reasons." Analysts credit him with bringing the company its tremendous success.

CONTACT:
Commodore
International LTD.
West Chester, PA.
215-431-9100

Less Bucks To The Byte:

Five million home computers and half a million personal computers were sold in the U.S. last year and that set the stage for a wilder new year at the Las Vegas show. Virtually ever major manufacturer is looking for ways to chop their prices in order to sell more. Among the hottest rumors are that Apple will offer its MacIntosh for $1000 to college students. Plus the company is supposed to be working on a cheaper-priced //e as well as a more powerful //e. Apple had a pretty good December, by the way. The company sold about 100,000 II and //e computers--the best sales figure ever.

CONTACT:
Apple Computer
Cupertino, CA.
408-973-2042

Warning To Computer-Kids:

An M.I.T. professor claims that kids can get "too much computer" if Mom and Dad defer them to the CRT (once it was just the TV) instead of giving them personalized attention. Saying kids can get "psychotic" he insists that 3 or 4 out of every 1000 children get addicted to computers, making those children more impersonal and withdrawn. "They could be very dangerous people," says Seymour Pappert, but he admits more research is needed.

CONTACT:
Seymour Pappert,
Prof. Of Mathematics
Massachusetts Institute Of
Technology
Cambridge, MA.
617-253-4381

Atari Lays Low:

Atari, meanwhile, is not having a good time at it. Company EO James Morgan has scrapped plans for the 1400XL computer and is delaying production of the 1450XLD (which was on display at the C.E.O. last June). Morgan warns of more profit losses until June of this year, predicting a return to profitability by the end of '84. He's also in the midst of the battle by Rupert Murdoch, who's trying to take over Warner, Atari's parent company. Analysts say Atari may be left out of the deal. The company is going ahead with a deal of its own.Atari has signed with Androbot (founder Nolan Bushnell's company) to license "unspecified products" for Androbot.

CONTACT:
Atari
Sunnyvale, CA.
408-745-4142

Qume Quits:

It's a problem, people at Qume warn, which threatens the entire computer and peripherals industry: labor costs are 5 to 10 times higher here than they are overseas. So with that, Qume announced a layoff of 600 workers (nearly half the staff) as it moves all the manufacturing operations to Taiwan and Puerto Rico. Qume makes printers, disk drives and peripherals. Qume President Roger Gower blames the drastic actions on falling prices for computer peripherals.

CONTACT:
Qume Corporation
San Jose, CA.
408-942-4176

A Gimmick Or A Great Hope:

Mattel is banking on a new 3-D video game, unveiled at CEO, called "Hover Force." The cartridge will go on sale next fall for $30. The player must wear spectacles developed by Georgia Institute of Technology which are filled with a film of special liquid that provides a 3-D effect. Mattel is hoping the new product is the needed shot-in-the-arm it needs. Sales of video game cartridges are expected to level off this year at the same figure as last year: 75-million sold.

CONTACT:
Mattel
Hawthorne, CA.
213-978-5150

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PL4

Video Games Vs. Homework:

The majority of 25-thousand 6th and 12th graders surveyed by the California Assessment Program report that playing video games does not help them how to use or understand computers. The kids were surveyed about their habits concerning television, homework, reading and playing video games. The children who spent more time programming computers had the highest overall skills scores. The survey found more boys than girls had programming skills, and in either sex, those children with the best-educated parents scored the highest. This multifaceted study goes to the state Board of Education this week to be used in developing school curriculum.

CONTACT:
California Board
Of Education
Sacramento, CA.

French Phone Directory:

People in Paris and some surrounding communities have the option of getting a computer terminal instead of a phone directory. By summer, the computer will be able to display the quantity of phone numbers equal to 100 telephone books. Minitel, as the service is called, is quite a hit, with 46 percent of France's telephone subscribers preferring the computer terminal to the phone book. The system has been operational since last February.

CONTACT:
Teletel
Paris, France

Rude Awakening Due:

If Esther Dyson of RELease 1.0 newsletter is right, watch out for IBM. She says the company is planning to announce yet another operating system. The system won't be compatible with PC-DOS, the language everyone and their sister is clamouring to emulate. Dyson suggests IBM is "moving on" to bigger and better things, and given the company's power (controll ing 20 percent of all computers sold in the U.S. last year) it obviously believes people will go along with the changes. Where would that leave PC-DOS-compatible hard and software? She thinks there will still be plenty of business for everyone and that IBM won't completely abandon its current users.

Computer Retailers Survey:

InfoCorp has just completed a survey of 255 dealers and found that the biggest seller was the IBM PC and PC/XT. Closely behind were the Apple //e, the Epson QX-10 and Apple's Lisa. The retailers gave the poorest marks to Commodore's 64 when asked about reliability. Reported problems with the 64 were three times those reported on the KayPro and Osborne Executive, two other machines the dealers said gave them problems. 42.4 systems were sold each month by most of the stores. Their biggest disappointment: the DEC Rainbow which saw dismal sales in last year's third quarter.

CONTACT:
Infocorp
Cupertino, CA.
408-973-1010

Look Who's Talking:

Gigantic leaps of the tongue are taking place in the field of voice synthesizers. Digital Equipment has announced DECtalk, a unit which connects to a personal computer via a RS-232C port, will enable a user to hear ASCII text messages from a computer (either local or remote) or access those messages verbally via a touch-tone telephone. The hardware features eight different voices, ranging from an old man to a child, and boasts the voices are of outstanding quality. The unit is expected to cost $4000 and will also be used by MCI next year when it launches its electronic postal system.

CONTACT:
Digital Equipment Corp.
Santa Clara, CA.
408-727-0200

The Game Is Cable:

Look out, the next video game giant may be closer than you'd ever expected in your living room. Larry Dunlap (formerly a rock group leader) has already signed up 500 U.S. cable companies (practically the entire U.S.) along with some in the U.K. and Canada (other countries are still negotiating) to provide a 24-hour-a-day "Games Network" on cable TV channels. For $15 a month, subscribers can play an ulimited number of games. Dunlap supplies the 64K computer which drives some 4,000 colors and a voice generator, and sports two special game keys in each subscriber's home. Every major software supplier has a finger in this pie. Games Network hardware should be avaiable in March. Dunlap figures he's got a potential market of 30-million homes.

CONTACT:
Larry Dunlap
Games Network
Los Angeles, CA.
213-932-1950

Homebanking Update:

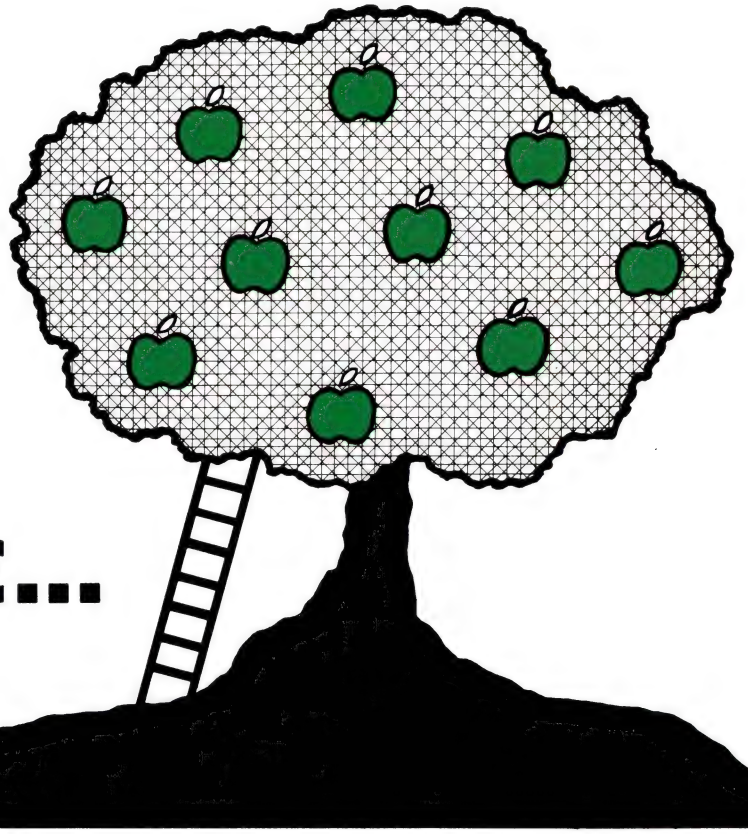
Bank of America's Homebanking sign up is being extended a few weeks to enable people who got computers for Christmas to sign up, according to a company spokesman. CompuServe is offering the free demonstration of the system. B of A says the extension of the demo isn't due to poor response. A spokesman says in fact, response has been "well ahead of projections" with some 3,000 accounts operational already and some 10-thousand more requests for application forms reaching the bank.

CONTACT:
Bank Of America
San Francisco, CA.
415-622-3456

It's Academic:

Newly separated from its mother, AT&T Information Systems is going to college at the University of Pittsburg. The company plans to turn the campus into the first completely computerized university to be called "Campus of the Future." Planned is a fiber-optics system electronically connecting 52 buildings on campus, complete with computer, voice and video communications simultaneously. The project will allow students, teachers or administrators to see, hear and electronically communicate with everyone else. Students will even be able to interact with their classes via their dorm rooms. 5,000 computers and 10,000 new telephones must be installed on campus in this multi-million dollar project. Once installed, students will also have full access to the campus library from their rooms.

CONTACT:
Jack Freeman,
Sr. Vice Chancellor
University Of Pittsburg
Pittsburg, PA.
412-624-4141



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The computer program shows screen displays or sample program outputs, while the audio cassette explains to the student what is being shown. After each instructional segment, the student is asked a question or asked to solve a problem. The computer checks the student's work.

When a lesson has been completed, the student turns off the cassette and goes to the *Step by Step Workbook* to review and

practice the material covered in the lesson. After the practice assignment has been completed, the student takes a quiz.

A final exam is included.

What does THE NEW STEP BY STEP teach?

There are about twenty hours of instruction. Topics covered include:

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- **INPUT**
- Loops **GOTO**
- **IF-THEN**
- Program counters
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- Screen formatting, including **TAB, VTAB** and **HTAB**
- Subroutines
- **READ-DATA** statements
- **FOR-NEXT** loops
- One-dimensional arrays
- Nested loops
- Low-resolution graphics
- Multiple-statement lines
- Program logic
- Floating point notation

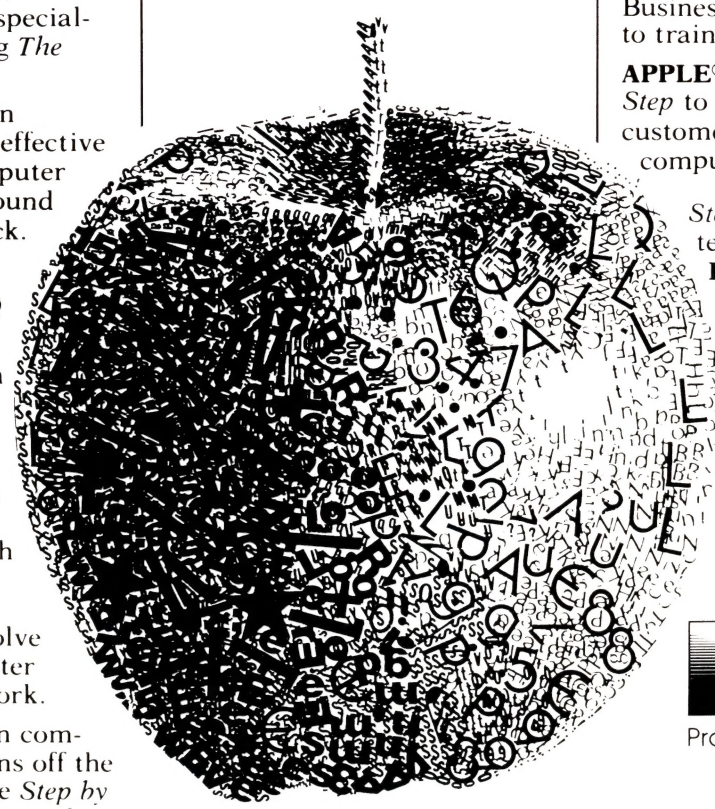
How can THE NEW STEP BY STEP be used?

Schools can use *Step by Step* for individualized instruction in programming in **BASIC** and in computer literacy programs.

Families can use *Step by Step* to ensure that all family members can use the family computer.

Businesses can use *Step by Step* to train their personnel.

APPLE® dealers can use *Step by Step* to introduce prospective customers to the **APPLE®** computer.



Step by Step Two, which teaches intermediate **BASIC** programming is available for programmers who have completed *The New Step by Step*.

Both programs are available at retail outlets or from PDI for $89.95 plus $3.00 shipping and handling.

PDI
Program Design, Inc.

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